STATE OF MINNESOTA DISTRICT COURT

COUNTY OF RAMSEY SECOND JUDICIAL DISTRICT

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The State of Minnesota,
by Hubert H. Humphrey, III,
its attorney general,
and
Blue Cross and Blue Shield
of Minnesota,

Plaintiffs,

vs. File No. C1-94-8565

Philip Morris Incorporated, R.J. Reynolds Tobacco Company, Brown & Williamson Tobacco Corporation, B.A.T. Industries P.L.C., Lorillard Tobacco Company, The American Tobacco Company, Liggett Group, Inc., The Council for Tobacco Research-U.S.A., Inc., and The Tobacco Institute, Inc.,

Defendants.

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DEPOSITION OF WILLIAM E. WECKER

Volume I, Pages 1 - 258

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(The following is the deposition of WILLIAM E. WECKER, taken pursuant to Notice of Taking Deposition, at the offices of Jones, Day, Reavis & Pogue, Attorneys at Law, 1450 G Street N.W., Metropolitan Square, Washington, D.C., commencing at approximately 9:10 o'clock a.m., November 13, 1997.)

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I N D E X

EXHIBITS		DESCRIPTION	PAGE MARKED
Plf Ex	4827	Wecker expert report	31
	4828	Three-ring binder containing annotated Wecker expert report and other items	61
	4829	Single-page spreadsheet, content of Exhibit 4828	66
	4830	Single-page spreadsheet, content of Exhibit 4828	66
	4831	Single-page spreadsheet, content of Exhibit 4828	66
	4832	Three-ring binder, "Minnesota, WEW 970721 Output"	71
	4833	Manila folder with one-page content headed "MN981113"	71
	4834	Manila folder with eight pages of handwritten notes	71
	4835	Three-ring binder, "Minnesota Core Model, Code & Output"	73
	4836	Annotated copy of Zeger's expert report	74
	4837	Three-ring binder, "Minnesota, Model Replication, Refined Disease"	75

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4838 Three-ring binder, "Minnesota, Model Replication, SAE/SAF Calculation" 75

4839 Three-ring binder, "Minnesota Nursing Home Model, Code & Output" 76

4840 Three-ring binder, "Minnesota, Diminished Health Status Model" 76

4841 Three-ring binder, "Minnesota, Model Replication, Data Creation" 77

4842 Excerpt from 1990 Surgeon General's Report 112

4843 "Estimating Damages in a Class Action Litigtaion" 134

4844 "Controlling emissions from motor vehicles" 148

4845 "TAX POLICY AND THE ECONOMY 9" 239

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P R O C E E D I N G S

(Witness sworn.)

WILLIAM E. WECKER

called as a witness, being first duly sworn, was examined and testified as follows:

ADVERSE EXAMNATION

BY MR. HAMLIN:

Q. Please state your name and address.

A. William E. Wecker, [DELETED], [DELETED].

Q. Dr. Wecker, my name is Tom Hamlin, I'm one of the attorneys for the plaintiffs in this matter. I know you've had your deposition taken before, but I do want to go over a couple of ground rules so that we can get a clear record.

If you don't understand a question that I've asked, please let me know and I'll try to rephrase it so that you can understand it. Is that agreeable?

A. Yes, sir.

Q. I'd also like you to make all of your answers in words because the court reporter can't pick up a nod of the head. Is that also agreeable?

A. Yes.

Q. In order to get a clear record, I'd appreciate

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it if you would wait until I finish asking my question before you begin your answer. Is that also agreeable?

A. Yes.

Q. Sir, you're an expert witness for the defendant tobacco companies in this case; is that right?

A. Yes.

Q. Are you working for any particular company?

A. No.

Q. Working for all of them?

A. Well I'm not sure.

Q. Who retained you?

A. I'm aware of the companies Philip Morris and R. J. Reynolds. I'm not sure of the status of any other companies.

Q. Where do you send your bills?

A. To Mr. Nims.

Q. Where is he?

A. He's at the Jones Day law firm.

Q. All right. You've been retained by the tobacco companies as an expert witness in other cases; correct?

A. Yes.

Q. Can you identify for me those other cases by name?

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A. Karbinwnck --
Q. How do you spell that?
A. I don't know. It's difficult, I know that much.
-- versus Reynolds. Rogers. Conner. That's all I can think of. And -- of that type. And then there are the Attorney General matters.
Q. What Attorney General matters have you been retained as an expert witness in?
A. Florida, Texas, Minnesota, and the first one, I think it was Mississippi.
Q. The three cases that you first named, Karbinwnck, Rogers and Conner, are those individual smoker cases?
A. Yes.
Q. What was the substance of the opinion that you gave in Karbinwnck?
A. I explained relative risk and how it should be interpreted, and quantities that are closely associated with relative risk and how they should be interpreted.
Q. What quantities?
A. Quantities that are functions of relative risk, like attributable fractions, looking for the essence, nutshell. I don't think the distinction is really --

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I don't think there were two opinions. I think it was all one.
Q. Did you give an opinion with respect to damages?
A. There might be some interpretation and connection that someone could make, but I wouldn't think of it as damages.
Q. So your opinion dealt with relative risk and associated concepts?
A. Quantities.
Q. Quantities?
A. Right.
Q. And what was the --
What was the sum and substance of your opinion with respect to that subject matter?
A. The caution that is appropriate in interpreting relative risks when they're not corrected for confounding factors was one point I made. I think that that's the major point.
If I -- if I miss something, it's because that stuff is not fresh in my mind any more. And it's available to you if you want to read the detail.
Q. Did you give a deposition in that case?
A. I think not.
Q. Did you testify at trial in that case?
A. Yes.

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Q. And when did you testify?
A. Recently. A couple of weeks ago.
Q. So this is the case in Jacksonville, Florida?
A. Yes. In fact it was the matter that collided with our previous schedule.
Q. How many days did you testify?
A. One.
Q. What was the sum and substance of the opinion that you gave in the Rogers case?
A. The same.
Q. Did you offer any opinions about the reports of the Surgeon Generals regarding smoking and disease?
A. The Surgeon General's report, I think, may have come up in the questions, but I don't -- I don't think I would say that I was offering --
Well it's not clear to me when I have an opinion and when I'm answering a question. I guess I -- every answer I give is some kind of opinion. But it wasn't the central point. The central point is the one I was making, the one I told you about.
Q. That was the point about relative risk?
A. Right. And because the Surgeon General also discusses relative risk and some relative risks are calculated there, there's a connection. I think I've given you a better impression of substance -- sum and

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substance by directing you to the point of my opinion rather than to some document that is related.

Q. Did you give a deposition in the Rogers case?

A. I think so, but I'm not sure. But I think I did.

Q. Did you testify at trial in the Rogers case?

A. Yes.

Q. How long did you testify?

A. It was one day.

Q. Where was that case venued?

A. Indianapolis.

Q. When was the trial?

A. I'll say about a year ago, but I'm not real sure.

Q. What was the sum and substance of the opinion that you gave in the Conners case?

A. The same.

Q. When you say "the same," you're referring to relative risk and associated quantities?

A. And their interpretations and cautions about their interpretations, yes.

Q. And when you say "their interpretations," are you talking about interpretations with respect to the relationship of smoking and disease?

A. Yes.

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Q. You also testified in Florida; is that right?
A. Not "also." We already discussed that.
Q. No, no, no. Let's -- let's talk about the Attorney General's case.
A. Oh, I see.
Q. All right? Did you testify --
A. Let's start over again, because there's a confusion in my understanding of the question.
Q. Sure.
A. Go ahead.
Q. All right. You were retained as an expert witness in the Florida case; correct?
A. That's --
Can we distinguish, when you say "Florida case," which case you have in mind?
Q. Sure. The Medicaid recoupment action.
A. The Attorney General case in Florida --
Q. Yes.
A. -- as distinguished from the other case in Florida.
That's correct.
Q. Did you provide deposition testimony in that case?
A. Yes.
Q. Did you testify at trial?

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A. I -- there --

There was no trial. Maybe we're not talking about the same case here.

Q. What was the sum and substance of your opinion in the Florida Attorney General matter?

A. It was describing my review and comment of certain expert reports that had been submitted in that case.

Q. Did those expert reports deal with damages?

A. Yes.

Q. Let's talk about the Texas Attorney General case. Did you provide deposition testimony in that case?

A. Yes.

Q. What was the sum and substance of your opinion in that case?

A. The same as Florida AG.

Q. And that was to review --

A. Describe the results of my review and my comment on expert reports that had been submitted in that case.

Q. And the expert reports dealt with damages?

A. They did.

Q. Did they deal with anything else?

A. They deal with --

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You could answer that either way.
Q. Well what was your understanding of the subject matter of those expert reports that you were reviewing and commenting on?
A. I would say they deal with damages. But they're many pages, so it depends on what level of detail you want to get into as to what else they -- what correlary matters they get into. They deal with smoking, they deal with health, they deal with disease, they deal with databases, analyses, but I'm not sure that really describes them as well as your first thought, which is they deal with damages.
Q. Did you give deposition testimony in the Mississippi Attorney General's case?
A. I don't think so. Can I check just to --
MR. BIERSTEKER: You're correct, you did not.
Q. Did you submit an expert report in that case?
A. I -- I don't remember.
Q. When were you first retained as an expert to provide an opinion in the Minnesota Attorney General's case?
A. I'm going to have difficulty pinning that down to a -- to even a month, but I can give you the -- what I recall about it. I was in --

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If you want. Shall I go ahead?

Q. Sure.

A. I remember this much, that I was alerted that I would be invited to work on that matter while I was in the middle of working on these other Attorney General matters and therefore was not able to turn my attention very fully to the Minnesota matter because of the press of time on Texas and Florida. So some -- the date would have been somewhere in the middle of the work that I was doing in Florida and Texas, but I -- I can't pin you on it -- pin it to a month.

Q. Can you pin it to a year?

A. I'll try.

I'd say early 19 -- early or spring of 1997.

Q. When were you first retained by the tobacco companies to do any work on any of the Attorney Generals' cases?

A. Oh, that's even harder. Well if we could --

There are certain dates that are -- that I don't have in my head but I know I can get or you can get, and one of those would be when the Mississippi Attorney General matter -- I'm not sure of the proper legal term, but let's say was filed or at least made known, and I think it was not long after that.

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I'm going to jot these questions down because this is the sort of thing I can get an answer to if I worked a little harder at it, but I just don't have it in my head.

Q. When were you first retained by any tobacco company to testify as an expert witness in any case?

A. Well that would be the earliest of the cases that we --

I think Rogers was the first time I testified, and that was approximately a year ago, and so if we add another few months to that, so it would be more than a year, less than two years ago for the Rogers matter.

Q. Was that the first time that you were approached by the tobacco companies to work as an expert witness in any litigation case?

A. I think, yes, but I -- I may mislead you with that. I had done work on smoking and health and a statistical analysis of those questions prior to that time, but not with re -- not with respect to some particular case.

Q. Had you done this work on smoking and health in connection with any consulting arrangement with a tobacco company or an attorney for a tobacco company?

A. Yes.

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Q. What tobacco company or attorney?
A. I think as far as we --
You want an "or?" I can give you an "or" answer easier. Barbara Kacir.
Q. Who does she represent?
A. She was a Jones Day attorney.
Q. And when were you approached by Ms. Kacir to do this work?
A. About --
It's a long time ago. About 1990.
Q. And what was your understanding of the work that you were to do?
A. Could have --
I was just trying to think of that date. Could even be --
When I said 1990, I just mean a long time ago around 1990. Could be earlier than 1990, but I think less than 10 years. At least 1990.
And then you say what was I asked to do?
Q. (Nodding.)
A. I was asked to study a large database from the American Cancer Society. It goes by the name -- well there's two of them, ACS I and ACS II are the short -- the acronyms for it.
Q. And ACS stands for American Cancer Society?

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A. Yes.
Q. And did you have possession of that database?
A. Yes.
Q. How did you obtain possession of that database?
A. The American Cancer Society --
Well leaving aside the transportation, it came from the American Cancer Society to me.
Q. Yeah. How did you get it?
A. I don't understand the question.
Q. Did you ask them for it?
A. I don't know the mechanics. There was --
The intermediary was Ms. Kacir, but exactly the -- and I --
I take it from my conversations with her that she asked them for it. But other than that, I don't know the details.
Q. Do you know if there was a lawsuit filed in order to obtain that database?
A. No, I don't know that.
Q. Do you know if the American Cancer Society voluntarily turned that over to you and to Ms. Kacir?
A. I assume so.
As opposed to, you mean, like theft or what? I don't know what the alternative is.
As far as I know, it was perfectly -- well I'll

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call it voluntary.
Q. Okay. But you yourself did not approach the American Cancer Society and ask for that database; correct?
A. Not initially. I did -- we've talked --
We've had direct contact with the American Cancer Society about the database, but it was technical matters after we received it.
Q. And when did you receive the database?
A. I'm saying approximately 1990. If -- if -- let me just invite you, if --
If some of these dates are really critical to you, I have -- I can jot down and I can probably do some work to nail those down, but if it's adequate for me to give a best recollection here, I won't chase after that information. But if you want me to, I -- I could.
Q. I would appreciate it if you could at least see if you could be more specific about the year when --
A. Sure.
Q. -- you were first approached by Ms. Kacir to do this work on the ACS database.
A. Sure. I'll check on it.
Q. All right. Now when Ms. Kacir approached you, did she have the database in her possession?

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A. I don't know.
Q. How soon after she first approached you about this project did you receive the database?
A. I think it was not very long, but we're talking --
My memory is somewhat hazy. This is nearly 10 years ago. So my best recollection is it wasn't very long.
Q. And specifically what were you asked to do with the database?
A. I don't think -- I can't recall a specific request. Maybe --
This is just the way experts work. The -- I can tell you what was in my mind, which must have been based largely on what I heard, but I don't have a specific request in my -- that I can remember. What I recall in my mind was that I was going to get this database on smoking and health and I was going to study it and see what -- what the nature of the data was, come to some understanding about it.
Q. And just so we're clear, you didn't have that database before you were approached by Ms. Kacir; correct?
A. That's correct.
Q. You got it after you were approached from -- by

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Ms. Kacir; right?

A. That's correct.

Q. And you got it from Ms. Kacir; correct?

A. She --

I thought of her as the intermediary. I got it from the American Cancer Society. But you can say it either way I suppose.

Let -- let me be clear about that. I don't have any doubt that the data is the same data without alteration or modification that the American Cancer Society had. I think it was just a matter of transportation as far as the data is concerned when it passed through the hands of Ms. Kacir.

Q. Do you know whether the American Cancer Society provides that data to the public or to researchers --

A. Well --

Q. -- on request?

A. I know there are a number of professional articles published based on the data that various researchers have looked at. I don't know the details of their policy on that. I -- I only know what I just told you.

Q. Have you ever published a peer-reviewed article regarding that data?

A. No.

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Q. So that data has basically been used by you for purposes of litigation; correct?
A. The data has been studied by me for the purpose of understanding it. And then at some later date, based on those understandings, I have described them in some litigations.
Q. Right. And the litigations were litigations involving tobacco companies; right?
A. Yes, the ones that I listed for you.
Q. Right. And you were at that time an expert witness for those tobacco companies; right?
A. That's right.
Q. Now how much time have you devoted to studing that database?
A. Well quite a bit over the years. I -- I can't say as I sit here how much, but quite a bit.
Q. Can you give me a figure on an annual basis?
A. No, I can't. There would be some years where I was working on it and some years where I wasn't, so it's --
Q. Have you spent more than a hundred hours working on that database?
A. I think so.
Q. More than 500?
A. I just -- I don't know. I don't know the answer

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to that.

Q. So it would be somewhere between a hundred and 500 hours?

A. No, I didn't say that.

Q. It would be more than a hundred hours; right?

A. Yes, I said that.

Q. More than 200 hours?

A. I just can't tell you more accurately than certainly more than a hundred hours, but I -- it's been over many years, and I just don't have in my head exactly how many hours.

Q. Have you prepared reports on your study of this database?

A. I can't --

None come to mind. But what is possible is that expert reports may have been called for in some of the matters that I mentioned, but I can't tell you from memory whether they were or not.

Q. Have you done any analyses that you -- strike that.

Have you done any analyses of this database that you retained internally in your company?

A. You mean that would resemble some kind of report or memorandum or something like that?

Q. Or analysis.

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A. I don't know what that would mean. See, an analysis --

Q. You don't know what "an analysis" means?

A. To me an analysis is an activity as opposed to a report or a document, so --

Q. You've never --

You've never put down in writing results of an analysis?

MR. BIERSTEKER: You mean apart from whatever he may have submitted in litigation?

MR. HAMLIN: (Nodding.)

A. I'm still trying to clarify your question. If by your question you're asking about something that would be like a report, the only examples of that that I can think of and would be, if they existed at all, would be reports that were submitted, if they were, in these matters that I've already described to you, and I just don't recall if there were such reports or not.

Q. Okay. My question really goes to whether you've done any internal memos that would lay out an analysis of questions that you looked into with respect to the database.

A. No, I have nothing -- nothing that resembles that.

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Q. But what do you have?

A. Well I'm trying to think of categories here. I do have pieces of paper that I would -- which are more -- more like charts and graphs than reports, and I have a number of those, but they -- they're not assembled in some report-like fashion.

Q. Have you submitted any of those in any of the litigation cases?

A. I presented -- yes, I -- that --

That's a good point. I should have thought of that. I have, of course, those materials from these matters which are exhibits -- we'll call those exhibits.

Q. And you also have additional analyses that you haven't submitted; right?

A. I'm not sure what --

"Submitted," I'm not sure how to interpret that. But used in trial, I'll call those trial exhibits, I have those. I say "I have them." I have them or the lawyers have them, I'm not sure where they are. And then there are some materials related to that that I have that would not be trial exhibits but sort of like backup exhibits.

Q. Now do you plan to use any of those in the Minnesota case?

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A. I don't --

I don't have an anticipation of what I'm going to be asked there. It's possible, but I've been given no suggestion that that's going to be the case. But I think they're interesting and I'm familiar with them, and I'd be glad to talk about them if asked.

Q. Thus far you have not been asked to do that.

A. That's right.

Q. How many hours have you spent on the Minnesota case?

A. Shall we put that in the category of something that you want an exact answer on? In which case I'll put it on my to-do list.

Q. Yes.

A. Then I won't bother to guess, I'll just chase down an exact number.

Q. Can we get that by tomorrow?

A. At our first break I'll call in and try to get somebody to -- people --

Q. I'd appreciate that.

A. -- in accounting to figure that out. Which raises --

I can already anticipate a weakness in that plan, because my accounting people won't have it up

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to the minute, of course. But I'll get it up to as far as they got it.

Q. Are you a smoker?

A. No.

Q. Have you ever been a smoker?

A. No.

Q. Do you have children?

A. Yes.

Q. Are they smokers?

A. No.

Q. Have you ever talked to them about smoking?

A. No.

Q. Now as I understand your background, you have a Ph.D. in statistics and management science; is that right?

A. Yes.

Q. During the time that you were working towards your Ph.D., did you do any research on health-care issues?

A. No.

Q. During your formal education have you ever taken a course in epidemiology?

A. I've taken courses in statistical analysis, which would be the same content that you would find in courses that might be labeled epidemiology, but

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none that have that name.

Q. Yeah. When you were in college, sir, --

A. Yes.

Q. -- did you ever take a course that was labeled epidemiology?

A. No, not the title. Content.

Q. All right. Did the course that you --

Well what course did you take in college that supposedly had the same content as epidemiology?

A. Courses in linear models, statistical inference, probability.

Q. In college did you ever take a course where the subject matter was determining disease in populations?

A. No.

Q. You --

A. However --

Q. -- also have a master's degree; is that right?

A. Let me -- let me complete my answer, which was: No. However, the content of courses that I took is the content that one would use to answer those questions.

Q. Did you ever take a course in college that was labeled epidemiology that studied disease in populations?

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MR. BIERSTEKER: Asked and answered. Objection.

A. I already answered that.

Q. No. This is a different question.

A. Logically the same answer. I never took a course with the label and the title epidemiology. I've taken courses that have the same content.

Q. Move to strike that portion that's non-responsive.

MR. BIERSTEKER: Well --

A. Then you both win, because he didn't like it either.

Q. When you were pursuing your master's --

A. Yes.

Q. -- degree, did you take any course labeled epidemiology that included the study of disease in populations?

A. I did not take a course in graduate school labeled epidemiology. I've taken courses that have the same content that you would find in courses labeled epidemiology.

Q. So you --

Is it your testimony that you've taken courses that have dealt with the subject matter of disease in populations?

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A. Dealt with the subject matter of the statistical analysis that would be employed to --

It's distracting when you laugh like that. Do you take that down, Mr. Reporter, when he does that?

Q. Yeah. It's distracting when you don't answer my questions.

A. Let's start over.

MR. BIERSTEKER: I think he's answering them, Tom.

A. Let's start over. Why don't we start over, because I've lost the thread. Why don't you begin with your question again and I'll continue to be as responsive as I can.

MR. HAMLIN: Read it back.

(Record read by the court reporter.)

A. It's my testimony that I have taken courses that deal with the subject matter of analysis that one uses in studying disease in populations.

Q. Now did you yourself ever study disease in populations in a formal course in college or graduate school?

A. I have studied the technology, the machinery, the methods that are used for that purpose.

Q. But you haven't studied disease in populations in college or in graduate school; correct?

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A. I haven't studied the disease, I've studied how to study the disease.

Q. You don't call yourself an epidemiologist; do you?

A. Not normally. But I suppose in some sentences I could because I am familiar with and competent in the methods of epidemiology.

Q. Have you ever published any articles that dealt with disease in populations?

A. Yes. But some clarification would be maybe helpful for you.

Q. I'm sure it would, yeah. Why don't you clarify that.

A. Well I've dealt --

I've published articles having to do with environmental pollution, and that's why I answer yes. Because that's the reason that's interesting, because it has to do with human health.

Q. And did that --

How many articles did you publish?

A. Two I can think of.

(Plaintiffs' Exhibit 4827 was marked for identification.)

BY MR. HAMLIN:

Q. Showing you what's been marked as Plaintiffs'

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Exhibit 4827, it's a copy of your expert report in this matter; is that right?

A. Yes, it appears to be.

Q. Okay. Attached to the report is a CV; correct?

A. Yes.

Q. Identify for me the two articles that you're referring to.

A. Okay. On page four, the last and the third from last.

Q. All right. Why don't you identify them by name so that we have a clear record.

A. "Correcting for Omitted-Variables and Measurement-Error Bias in Regression with an Application to the Effect of Lead on IQ."

Q. Now this has not yet been published; right? Or has it been? I --

A. No, it's -- it's accepted for publication. It's what you'd call in press.

Q. Has it been published yet as we sit here today?

A. I don't think so. I haven't seen it. But it -- it was supposed to appear this fall, so maybe --

It's imminent, I guess, is what we would say.

Q. And what is the other article?

A. "Controlling Emissions from Motor Vehicles: A Benefit-Cost Analysis of Vehicle Emission Control

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Alternatives."

Q. Let's talk about that article. What disease did you study?

A. The study was related to formation of ozone, which is thought to affect health in a variety of ways. And --

I'll stop there. That's -- that's what I studied.

Q. Did you study a specific disease?

A. No. The health consequences of ozone were the end-point disease.

Q. And what did you study about ozone?

A. How to --

How to have less of it.

Q. So you didn't study the health effects of ozone, what you studied was how to reduce ozone; right?

A. Yes.

Q. Now let's go to the other article that you've identified. What disease did you study in this article entitled "Correcting for Omitted-Variables and Measurement-Error Bias in Regression with an Application to the Effect of Lead on IQ?"

A. The disease, if that's the correct term, is the detrimental effect on the human of low levels of lead in the body.

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Q. And you studied the levels of lead in the body; is that right?
A. The detrimental effect on the body of low levels of lead.
Q. And what are the detrimental effects that you've studied?
A. Well a lot -- a lot of lead will kill you.
Q. Is that what you studied?
A. No. I was concerned more about low levels of lead that are thought to have neurological implications.
Q. And did you study the neurological implications?
A. Yes.
Q. Okay. And what were they?
A. Well there's many manifestations, but I was concerned with the possible effects on intelligence.
Q. Did you study a particular database of information?
A. I think "no" would be the best answer to that.
Q. Well what was the basis for your conclusions?
A. Mainly mathematical developments.
Q. What do you mean by that?
A. Well let's say inventions of the mathematical kind. But I also had applications of the ideas to data, but the data came in the form of various

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statistical estimates that are in the literature.

Q. As part of this paper did you study populations or any particular population of people?

A. Yes.

Q. What population did you study?

A. Various samples of young people.

Q. Where did the samples come from?

A. At least half a dozen different studies that were -- are conducted in different parts of the world; some in England, I think, most in the United States.

Q. And what --

What you were attempting to do was develop certain mathematical formulas; is that right?

A. Yes. That was the main point of the article, to develop new mathematical methods for dealing with the particular statistical difficulties that arise with this data.

Q. So the article concerned statistical procedures that would solve some of the problems with this data; right?

A. If not solve, at least address and make helpful progress.

Q. You didn't reach any conclusions about the incidence of any disease; right?

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A. No.
Q. Now just so we're clear, when you were pursuing your Ph.D., did you take course work?
A. Yes.
Q. And did you take any course labeled epidemiology that involved the study of disease in populations while you were pursuing your Ph.D.?
A. If I understand that, it's the same question we've been over many times. If there's a subtle difference, I missed it.
Q. The only difference is I want to be sure that I covered the work that you were engaged in in getting your Ph.D. as opposed to your master's or --
A. Right.
Q. -- undergraduate degrees.
A. My comments earlier applied to my entire graduate school experience.
Q. All right. So you didn't take a specific course labeled epidemiology; correct?
A. That's correct. Although, as I pointed out, I have taken courses with that content.
Q. Now when you say "that content," you're talking about statistical methods; is that right?
A. Yes.
Q. And is it your testimony that if you're familiar

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with statistical methods, that you can then apply those statistical methods to an epidemiological problem and call yourself an epidemiologist?

A. You can certainly apply statistical methods to matters of human health if you understand how to do that.

Q. But you don't call yourself an epidemiologist.

A. Not normally, because --

Q. Okay.

A. -- it's not what I do full time. But epidemiology is the statistical study of human health, and I do statistical studies sometimes on human health.

Q. Do you belong to any epidemiological societies or professional associations?

A. I belong to the American Statistical Association.

And you -- your gesture --

Q. Yeah. Any others?

A. Society for Risk Analysis.

Q. Do you belong to any societies that are directed at epidemiology?

A. Both the Society for Risk Analysis and the American Statistical Association are broader than simply epidemiology, but they include sections on

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that subject directed to that and people who -- loads of people who work on those questions.

Q. Do you belong to any societies that are directed at epidemiology specifically?

A. Exclusively?

Q. Exclusively.

A. No.

Q. Now have you published any peer-reviewed journal articles regarding health-care costs?

A. No.

Q. Have you published any peer-review -- peer-reviewed articles regarding health-care issues other than the two that you've just talked about; that is, the article concerning ozone and the article concerning lead in the body?

A. Those are the only two I notice that would be directly concerned with those kinds of applications. But then other methodological articles I've written certainly have application in the health-care area.

Q. But those are the only two that dealt with issues that you classify as directly involving health care.

A. In the article, yes.

Q. Now have you ever published any articles regarding the cost of treating tobacco-related

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illnesses?

A. No, although I've published articles describing methodology that might be useful for that purpose.

Q. But in the article you didn't identify that methodology as being useful for that purpose; correct?

A. Right.

Q. Now have you ever talked with any employee of any tobacco company about the health-care costs of tobacco-related illnesses?

A. An employee of a tobacco company? I don't think I've ever talked to an employee of a tobacco company.

Q. Have you ever asked for any studies from any of the tobacco companies involved in this case regarding the cost of treating smoking-related illnesses?

A. Apart from the studies that are involved in this case, do you mean?

Well let me mention them as one category. There are studies involving cost of treating illness that are involved in this case and about which I've got comments, but other than that, no.

Q. I mean have you actually asked for any studies done by the tobacco companies on the cost of treating smoking-related illnesses?

A. No.

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Q. Do you know of any such studies?
A. No.
Q. Now you've published articles concerning statistical modeling; right?
A. Yes.
Q. Can you give me just a couple of examples based on your CV of articles that deal with statistical models.
A. Read the title?
Q. Yeah. Just so we're clear, right.
A. "Discounting, Ergodicity and Convergence of Markov Decision Processes."
Q. That was published in Management Science in April of 1977; correct?
A. Yes.
Q. Were you the principal author?
A. I was one of --
I was a co-author. There were two of us. There isn't a principal author, there are two authors.
Q. All right. You weren't the first author?
A. I'm a W, so I'm -- unless I'm authoring with Zellner, I'm usually the second one.
But consequently, I detect a point worth -- worth clarifying. There isn't a concept of principal author in any of my co-authored -- well there's one

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article where I think that concept would apply, but in no others. They're just co-authored articles.

Q. Can you give me another example of a -- of an article dealing with statistical models on your CV?

A. Okay. Let's stick with the same page. "Predicting the Turning Points of a Time Series."

Q. That's the last article on the page?

A. Yes.

Q. That was published in the Journal of Business, January 1979; is that right?

A. Yes.

Q. Now were both of these articles published in peer-reviewed journals?

A. Yes.

Q. Have you ever made use of multiple imputation in any of your modeling?

A. No.

Q. Have you ever made use of propensity scoring in any of your modeling?

A. No.

Q. Apart from your published articles, have you yourself prepared statistical models?

A. Yes.

Q. Can you give me just two examples.

A. I've built forecasting models for consulting

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client Sears Roebuck Company. And while I'm thinking about that subject, I've done something similar for Ace Hardware Corporation in a consulting undertaking.

Q. When did you do the model for Sears Roebuck?

A. Sometime in the 1970s.

Q. When did you do the model for Ace Hardware?

A. I think late 1970s.

Q. Have you done any models in the last 10 years --

A. Yes.

Q. -- as a --

A. Go ahead.

Q. -- consultant?

Yeah, go ahead, that's the question.

A. Yes.

Q. Can you identify for me two examples.

A. Modeled the effect of the merger of the -- the effect on rail traffic of the merger of the Burlington Northern Railroad and Atchison, Topeka, Santa Fe Railroad.

Q. When was that?

A. About two -- two, three years ago.

Q. Can you give me just one other example of a model that you created in the last 10 years?

A. Modeled the propogation of hydrocarbon vapors in various situations.

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Q. Now the Burlington Northern --

Well let's talk about the Burlington Northern model. Was that published in a peer-reviewed journal anywhere?

A. No. That was a consulting project.

Q. Did you use multiple imputation in it?

A. No.

Q. Did you use propensity scoring?

A. No.

Q. When was the hydrocarbon vapor model done?

A. Over a period of years and within the last 10 years. Not recently. Four, five years ago.

Q. And I take it this model wasn't published in any peer-reviewed journal either; right?

A. That's right. It's a consulting undertaking.

Q. Did you use multiple imputation in that model?

A. No. It doesn't bear on the issue.

Q. What about propensity scoring?

A. No. It's not appropriate.

Q. Have you ever used multiple imputation in any consultancy arrangement where you've built a model for a client?

A. No.

Q. Have you ever used propensity scoring in that connection?

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A. No.
Q. Now as I understand it, you pursued an academic career after you received your Ph.D.; correct?
A. Yes.
Q. Let me go through that briefly --
A. Okay.
Q. -- in your CV.
You received your Ph.D. in 1972; correct?
A. Yes.
Q. And then you took a position as assistant professor at the University of Chicago Graduate School of Business; right?
A. Right.
Q. And you were there for three years; correct?
A. No, not quite --
Q. Okay.
A. More like 12 years. Let me count it.
Q. I'm just talking about your time as an assistant professor.
A. Well that's -- that's from 1973 through 1976.
Q. Right. And then you became an associate professor in 1977; is that right?
A. Right.
Q. And you stayed at the University of Chicago until 1983; right?

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A. Yes.
Q. During the time that you were at the University of Chicago and on its faculty, did you ever teach a course in epidemiology?
A. Not with that title, but with that content.
Q. Did you ever teach a course that dealt with disease in populations?
A. Not with that application, but with methodology that would be appropriate.
Q. What courses did you teach during the time that you were at the University of Chicago?
A. A number of different courses in statistical analysis and applied mathematics.
Do you want more detail?
Q. Yeah. Can you give me a couple of courses that you recall.
A. I think the courses had unhelpful titles like "Econometrics 234" or some number like that, so content would be the best way to describe them. Is that okay?
Q. Sure.
A. I taught statistical forecasting, and the analysis of stochastic processes.
Q. That's a separate course; right?
A. Well both --

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This topic comes up in forecasting and it also comes up in other courses.

Q. But why don't we try to identify the course, and then maybe you can tell me --

A. Okay.

Q. -- what the subject matter was.

A. Okay. I'll pick one course at a time.

Q. Yeah.

A. There was a --

The courses were grouped in categories, and I think one of the categories was econometrics, one was statistics, one was -- I'm not sure, I'll call it applied mathematics, others. And in the econometrics area I taught forecasting, statistical forecasting. In the statistics area I taught courses in statistical inference and probability. And I guess that would -- generically that would cover it. But you may want to know more about what kind of statistical inference, and if you want to ask, I'll tell you.

Q. Were there any other subject matters or courses that you taught?

A. Yes. In that third area that I'm calling applied mathematics, I've forgotten exactly how it was labeled, I taught courses in scheduling -- no, I

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take it back. I -- I never taught a full -- an entire course that was only on scheduling. I taught courses that included scheduling. And I -- maybe the catch-all term would be "systems operations."

Q. Okay. What do you mean by that?

A. Well scheduling would be an example of that, or inventory control, or queuing theories comes up in that area.

Q. What do you mean by "queuing theories?"

A. It's a branch of applied mathematics having to do with -- like when you go to a bank and you line up and then go to the teller, that's call a queue, that line is, in the vernacular, so any things that have waiting and then processing. I think -- I hope that covers it.

Q. Now you said "waiting." Are you talking about w-a-i-t or weighting?

A. Well I've done both, but I meant the first.

Q. Did you teach any other subject matters at the University of Chicago?

A. Optimization sometimes.

Q. What do you mean by "optimization?"

A. That's a branch of applied mathematics associated with finding extremal points on functions or maximizing arguments on functions.

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Q. Now is this theory applicable to how a business is run?

A. Not exclusively. Any situation that can be described with mathematical equations might lend itself to a question: At what values of the arguments of these functions does the function take on its largest or smallest value? Optimization technology is the subject of answering that question.

Q. When you taught that course, did you teach it in the context of how it applied to a business?

A. No. Usually the application --

I could do applications like that, but when I taught optimization, it was in the abstract.

Q. While you were at the University of Chicago, did you teach any courses in public health?

A. No.

Q. In 1984 you took a position as associate professor, Graduate School of Management, University of California at Davis; right?

A. Yes.

Q. Now the Graduate School of Management is a business school at UC-Davis; right?

A. Yes.

Q. And you were on the faculty of the Graduate School of Management; correct?

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A. Right.
Q. What courses did you teach?
A. The same kind that I mentioned, plus I was recruited there to do the computer area, so I taught courses in computer science as well.
Q. Did you teach any courses in public health?
A. No, although the content of my courses would be interesting to people in public health.
Q. But you didn't teach any course that was titled public health.
A. That's right.
Q. Then in 1985 you became a professor at the Graduate School of Management at UC-Davis; right?
A. Yes.
Q. And you stayed there until 1989; correct?
A. Yes.
Q. During the time that you were a professor, did you teach any additional courses that you haven't mentioned?
A. Well I think I've covered the content of everything. The main additional courses were in the area of computer science. But if you want to explore that, there's more than one course and more than one topic.
Q. But they fall within the rubric of computer

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science.

A. Computer science, the use of computers, the database management, computer simulation, that sort of thing.

Q. Then you left UC-Davis in 1989; right, or thereabouts?

A. 1989, yes.

Q. And you opened up your own business in 1990; is that right?

A. Yes.

Q. And that business is William E. Wecker Associates, Inc.; right?

A. Yes.

Q. How many employees did you have in 1990?

A. If you really need to know the answer to that, I'll have to research it. It wasn't very many, but I don't remember the number.

Q. Was it more than 10?

A. No.

Q. Less than 10.

A. Less than 10.

Q. And what was the nature of the business?

A. Doing applications of statistics and applied mathematics.

Q. And you're still president of William E. Wecker

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Associates today; right?

A. Yes.

Q. How many employees do you have today?

A. Let me say approximately 13. I could count them up exactly if you really want to know.

Q. Can you give me some idea as to the professional training of your employees?

A. All in the same area of statistics and applied mathematics.

Q. All 13 are in the area of statistics and applied mathematics?

A. I have two clerical, and the rest -- all the professionals are in that area.

Q. Now are these professionals people with Ph.D.'s?

A. Myself and one other. The others have master's degrees. Let me make sure that's true in every case. Just a second.

Well without thinking real hard, I think it's true in every case.

Q. How much of your income in 1997 came from your work on the tobacco cases?

MR. BIERSTEKER: Tom, let me interject just a thought here. I recall broaching this subject of compensation with -- I believe it was Dr. Miller, and at that time we said we'd work out some arrangement

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and we'd just do mutual disclosures, and frankly, we never followed up on it. I'm still willing to talk to you about it.

MR. HAMLIN: Peter, I'm not asking him about his compensation in the Minnesota case, I'm just asking him generally. And I won't ask him about the compensation in the Minnesota case, I'm just asking him generally.

MR. BIERSTEKER: I'm not sure that it's real different. But if you want to ask, you may go ahead. If Dr. Wecker knows, he may answer.

A. Well I don't know without checking with the people that do the accounting.

Q. Can you put that on your list?

A. Well I think I will -- I will put that question on my list, but then I will ask counsel if -- exactly how much disclosure of my personal finances is appropriate here. So I don't know if I want to answer that or not, but if it -- if counsel tells me that that's called for, then I'll -- I'll do it.

Q. And do you understand the inquiry? I'm not asking about the Minnesota case. I'm asking about all of your work for tobacco companies in 1997. You understand that?

A. I'm writing it down.

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Q. And I'm asking what percentage of your income came from the tobacco companies in 1997.

A. Okay. I'll ask my people who have those figures if they can answer that for me, and then I'll tell Mr. --

Q. You certainly can get the answer; right?

A. Well I can ask.

Q. Yeah.

MR. BIERSTEKER: Tom, let me -- let me --

If you're willing to do this on a reciprocal basis with your witnesses, then that's fine, we'll go ahead and do this. If you're not, then I don't think Dr. Wecker should have to do this.

MR. HAMLIN: Well I'm not going to ask Dr. Wecker about his compensation in this case.

MR. BIERSTEKER: Well look --

MR. HAMLIN: I'm just asking him generally.

MR. BIERSTEKER: I understand, but I could ask the same question of Dr. Miller generally, you know, how much of your income over the course of the last year or the last several years has come from working in connection with litigation filed by the Attorneys General, and there would be an answer to that question. In 1997 is probably exclusively -- I

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don't know, but it may be exclusively Minnesota. It seems to me that that's kind of splitting hair, and all I'm saying is I'm willing to work out an arrangement with you or we can share information relating to compensation of experts who have worked in this particular case, whether that be expressed as a percentage of their total income on all matters related to litigation involving tobacco or whether it be on Minnesota or whatever, but whatever we agree on should go both ways.

BY MR. HAMLIN:

Q. Uh-huh. Well let me ask this: I take it that you can determine the amount of money that you earned from the tobacco companies in 1997; correct?

A. What I can do is ask the people who keep those records, and then I'll find out what they can tell me.

Q. Are you suggesting that you may not be able to come up with that number?

A. I hadn't thought about it. I just knew where I -- knew where to go to ask.

Q. You've never looked at that in your review of any financial records of your company?

A. No.

Q. Well what percentage of your work in 1997 was

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devoted to work for tobacco companies?
A. I can say a lot less than half, but I don't -- can't do any better than that.
Q. More than a third?
A. You press me beyond what I can be precise about. I wanted to give you a better answer than "I don't know," but that's about as good as I can do.
Q. Now what I'm asking is the amount of time that you and your colleagues at your company spent working on cases for tobacco in 1997, and specifically what percentage of time was spent on those cases.
A. Well that's even harder. I was --
Q. I'm not asking for an individual breakdown, I'm just asking firm-wide what was the --
A. Well this is --
Q. -- percentage.
A. -- a different question than the first question.
Q. Right.
A. I'm much more familiar with how I spend my time than how everyone else spends their time. I would want to -- I can tell you --
I did my best on my own time. I'm not willing to speculate on exactly what the breakdown is of the time of 13 different people. I'm just not that familiar with those figures.

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Q. All right. But you could obtain that information.
A. I think I could.
Q. All right.
A. But at least I know where to ask.
Q. Now have you had any assistance from any of the people in your firm in doing any work on the Minnesota case?
A. Yes.
Q. Who?
A. Mr. Harvey.
Q. What's his full name?
A. Gary --
Full name. I -- I --
Q. Just his first name and his last name.
A. Gary Harvey.
Q. Who else?
A. Stephen Hoff.
Q. Anyone else?
A. Those are the only two people I've worked with. It's possible that they in turn have called upon others, but I wouldn't know those details.
Q. What is Mr. Harvey's professional training?
A. A master of science in applied mathematics.
Q. How long has he been an employee of William

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Wecker Associates, Inc.?

A. About a year and a half, going on two years. I think he --

I have a better recollection. I think he came in January, now that I thought about it hard, of 1996.

Q. And what did Mr. Harvey do in connection with the Minnesota case?

A. He has assisted me and worked at my direction in the review and comment on the work of plaintiff experts.

Q. Can you be more specific as to what he's done?

A. Well he's helped me to process the computer materials that we've received from your experts. That's probably where he spent most of his time, is trying to come to grips with a large body of computer materials, figure out how they fit together, try to get them to execute, that sort of thing.

Q. What's Mr. Hoff's professional training?

A. The same, applied mathematics.

Q. And how has he assisted you in your work on the Minnesota case?

A. I'm going to try to see if I can split out what he's done compared to Harvey. I know he's -- he's worked on the computer materials, but see if there's

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something special that he's done. Take me a minute.

Right now I can't think of a way to split the two of them out. They've worked cooperatively on the analysis of the computer materials we've received from plaintiffs. But I've spent far less time talking to him than I have to Harvey, so I'm not sure exactly what he did.

Q. Let me direct your attention to Plaintiffs' Exhibit 4827, which is your expert report. Did Mr. Harvey assist you in writing this report?

A. In -- in the sense that he's assisted me generally, yes.

Q. Did he write any portion of it himself?

A. Yeah, I can see sections that I asked him to write up.

Q. What are those?

A. On page eight there's -- and nine, there's a hypothetical example. I think he did that. But I could be wrong, it could have been Hoff, I've just forgotten. But at any rate, that was their initial contribution.

Now since I went through that material, I may have changed the words, so it's not correct to understand me to say that they wrote this paragraph. But I remember them doing this work, bringing it to

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me.

Q. Are there any other portions that Mr. Harvey or Mr. Hoff wrote?

A. I can see the legacy of some of their phrases in here, but I -- I don't think it's correct --

It would not be correct to find any section in here and say they wrote that section. But I -- there were initial drafts of sections that I can -- I remember them bringing to me that I eventually organized into some -- and integrated it in the report.

Q. What initial sections are those?

A. Well I mentioned one, and I was passing by some other language. Let me look at my report, because I -- I have some notations on it that may help you.

On page eleven there's a section on -- with bullet points having to do with inconsistencies. That's where I had Mr. Harvey going through the code and finding those inconsistencies and then discussing them with me, and so I remember he brought -- he brought that material which I integrated into the report. The other --

The bullet points beginning on page nine, these percentages were all calculated by -- well either by Mr. Harvey or Mr. Hoff or whoever their -- else they

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were working with, but I think it was Mr. Harvey who brought those results which I integrated in. And I could -- just by the phrasing, I -- I recognize that some of those phrases would have come from him.

Q. Can you recall any other sections of the report that were drafted by either Mr. Harvey or Mr. Hoff?

A. Here's another one. So now we're getting a theme here. Found some more bullet points in item 12. Generally these bullet points, it looks like, came off of lists of materials that he brought which I integrated. So I recognize number 12 as being -- coming from something he brought me. And I also see phrasing which is not the way I write, recognize it as his language.

Q. Now you're reviewing a copy of your report?

A. Yes.

Q. And it has notations on it?

A. Yes. That -- that's --

Here, I'll show you. Same report, but has my pencil notations.

Q. All right. Can I see that?

A. Sure.

MR. HAMLIN: Can we mark this?

MR. BIERSTEKER: Well not if he can't have it back.

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MR. HAMLIN: Oh, of course you can have it back.

MR. BIERSTEKER: Okay.

MR. HAMLIN: Of course you can.

(Plaintiffs' Exhibit 4828 was marked for identification.)

(Recess taken.)

BY MR. HAMLIN:

Q. Let me show you what has been marked as Plaintiffs' Exhibit 4828. And as I understand it, this is a copy of your expert report with your notations; is that right?

I have the three pages. I'm going to mark those separately. Is it --

Is that correct, --

A. It is.

Q. -- Exhibit 4828 is a copy of your expert report with pencil notations on it?

A. Yes. And it looks like some other things, too.

Q. There are some additional items in the notebook as well?

A. Yes.

Q. Why don't you identify them.

A. I see a three-page list headed "DEPOSITION AND TRIAL TESTIMONY." I see a photocopy of a computer

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CD. I see a letter dated October 24, '97 to Mr. Hamlin. I see a photocopy of an eight-millimeter tape. I see a letter from Mr. Hamlin dated October 16, '97.

You probably can identify this better, some legal document. What do you call that?

Q. I believe there's a title right on there.

A. Well "STATE OF MINNESOTA, COUNTY OF RAMSEY" --

MR. BIERSTEKER: No, no, no (indicating).

THE WITNESS: Oh.

A. That's "PLAINTIFFS' PREDESIGNATION OF DOCUMENTS FOR THE OCTOBER 23-24, 1997 DEPOSITION OF WILLIAM E. WECKER."

That's it.

Q. Now there are a number of pencilled notations on your expert report. Are those pencilled notations in your handwriting?

A. Yes. So far at least.

Q. Yeah. Why don't you review the document and tell me those that are not in your handwriting.

A. Well there's a third category of I'm not sure whose handwriting. It could be mine. If I'm unsure, I'll skip over it and I'll pick the ones that I'm sure are not mine.

On page three, on the left, that's not my

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handwriting.

Q. Whose handwriting is it?

A. I don't know, but I'm willing to guess it's Mr. Harvey's, because he and I sat together with this, made these notations.

On page four, in the lower right, that's not my handwriting.

On page five, the lower left, that's -- that's not mine. On the top of page five after the letters e.g., that's not my handwriting.

On page six, at the top right and middle right, not my handwriting.

On page seven, in the middle is a mixture; some is mine, some is not mine.

Q. Whose is it?

A. I'm -- this all --

The handwriting that I know is not mine all looks the same, and I'm -- I suspect -- I believe it's Mr. Harvey's because he and I were sitting together with this, making notations. The only other real possibility is Mr. Hoff, but I -- I'm pretty sure it's Harvey's.

On page eight, in the lower right, I see some handwriting.

Q. That is not yours?

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A. Well no, I've taken it back. That could be mine. That's -- that's a gray area one. I'm not sure of that.

On page nine, on the lower left -- but that looks different than the other handwriting, so I don't know if that's -- I don't know. It's not mine, that's all I can tell you.

Q. Can you tell me whether it belongs to either Mr. Harvey or Mr. Hoff?

A. Only by implication. I'm confident that --

Well I'm trying to think what I'm confident of. I know that some of this handwriting is not mine, is Mr. Harvey's, because I was sitting there watching him when the two of us were doing these notations.

Q. So the handwriting is either yours or Mr. Harvey's or Mr. Hoff's; right?

A. That's, I'm sure -- well how --

How does one be certain of that? Because I don't recall, for example, on the bottom of page nine, on the left, I don't recall seeing anybody write that. I don't recognize the handwriting. And I can only give you my best surmise about the authorship.

Q. And your best surmise was what?

A. Mr. Harvey.

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Q. Uh-huh. All right.
A. But I'm -- I'm -- I'm --
I'm not as comfortable with that speculation here because this handwriting doesn't look the same --
Q. Uh-huh.
A. -- and that makes me wonder about it. So I'm not sure who the other handwriting is, but my best guess is Hoff or Harvey.
At the bottom of page 10, it's not my handwriting. Very bottom, just above the number 10, that is my handwriting.
Q. And again, is that Mr. Harvey's handwriting or Mr. Hoff's?
A. I can't do better than what I've told you about that. If you want me to go over that all again, I will, but I've done my best on it.
As a handwriting analyst, I can see that the writing below 10 looks the same to me as most of the handwriting I've been pointing out to you, and I believe that is Mr. Harvey, but I have no really good way to be sure of it. I can go ask him, that's -- I can put that on my list.
Q. All right. Let's go to the next page.
A. I see on the top right some handwriting that is

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not mine. And what -- on the left, on the bottom, the bullet point with the arrows, those are -- that's not my handwriting.

Q. Okay. Let's go to the next page.

A. I was still pondering on eleven, but all the other is hard for me to be sure of. Gray area for some of that other.

On the left side of page 12, that's not my handwriting. All the rest is.

MR. HAMLIN: Let's mark these individually.

(Plaintiffs' Exhibits 4829 through 4831 were marked for identification.)

BY MR. HAMLIN:

Q. Sir, I want to show you what's been marked as Plaintiffs' Exhibit 4829. Now this was, I believe, stuck in your notebook; is that right?

A. It was in the -- what do you call this thing? -- pocket of the notebook.

Q. All right.

MR. BIERSTEKER: And for the record, the notebook is Exhibit 4828.

MR. HAMLIN: Right.

Q. Can you identify this document?

A. It's a chart I prepared which I'll call -- I think I'll call it notes of mine, but it has at the

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top the words "Zeger Inconsistencies."
Q. Can you tell me generally what this document shows or attempts to show?
A. I really didn't design it to show something. It's just a set of notes in which I was comparing all the various models and aspects of models. And there's so many; I tried to find a way to get it all jotted down on one page.
Q. Are the inconsistencies --
Well what are the inconsistencies that you are referring to at the top of the page?
A. Well let's go by way of example. There's rows and columns in this set of notes, and row one, column one, is referring to core model and the aspect of the core model that I call and I think others in this matter have called the first reduction. And so by a great short -- shorthand I have NMES P, left paren, S slash D, right paren, to remind me of how the core model goes about that step.
And then to pick the same column but jump here to, say, the refined disease for the case of CHD, stroke, I have some other notation, but the point of the other notation is that there's a different approach in -- to the first-reduction aspect of the modeling for this other model, the refined disease

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model.

Q. And you prepared this document?

A. Yes.

Q. When?

A. Oh, over the last few days.

Q. Let me show you what's been marked as Plaintiffs' Exhibit 4830. It is entitled "Databases, Minnesota." Do you see that?

A. Yes.

Q. What is it?

A. It's just a list of the various databases that are involved in various aspects of the work -- of my work and other experts' work in this case.

Q. Do you have possession of all of these databases that are listed?

A. Yes. Several of them are in my possession because I received them from your expert, so I have whatever you gave me. If it's not all there, it's because -- it's for whatever reason. So I can't vouch that I have the entirety of all these data sets, but I have something from all these data sets.

Q. I see that there's a data set with the acronym MCBS.

A. Yes.

Q. Is that right?

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That stands for Medicare Current Beneficiary Survey; right?

A. Yes.

Q. And you received that from counsel in this case; right?

A. No.

Q. Okay. What does it say?

A. What does what say? The handwriting right below the letters MCBS?

Q. Yes. That says "We got from government?"

A. Yes.

Q. Who's the "we?"

A. I don't know. It's my handwriting, so I guess I, as the author, I --

"We" means either me or us at my office.

Q. Then there is another database listed, E-P-E-S-E. That stands for Established Populations for Epidemiologic Studies of the Elderly;" right?

A. Yes.

Q. And then there's a notation under that, "From counsel;" is that right?

A. Yes.

Q. That's your notation?

A. Yes.

Q. Now the counsel you're referring to is counsel

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for the tobacco companies?
A. Yes.
Q. So you received that database from them?
A. Yes.
Q. Let me show you what's been marked as Plaintiffs' Exhibit 4831 for identification. Can you tell me what that document is?
A. Yes. It's a list of various computer problems we've encountered in trying to execute and understand the computer materials received from plaintiff experts.
Q. Now you have other documents with you today; right?
A. Yes.
Q. Can you identify for me what you've got with you in your bag?
A. Sure.
Q. Let's start with your bag.
A. I have a binder labeled "Minnesota Output," which is a computer printout of various kinds.
Q. Could I see that?
A. Sure.
Q. Did you generate this output?
A. Yes.
Well I -- I'd have to go through every tab.

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There might be some that I did not.

Q. Well you put --

A. Let -- let me take it back. I think I would have --

Subject to double checking, I think the answer is yes, I did generate all the output.

Could you be more specific about what you want out of my case?

Q. I want anything out of your case that deals with this case.

A. Okay. Skip travel arrangements?

Q. Right.

A. Let me -- let me double check that this is all --

Q. Yeah, sure.

A. -- for this case.

These are some notes that I have that are related to this case.

(Plaintiffs' Exhibit 4832 through 4834 were marked for identification.)

BY MR. HAMLIN:

Q. Let me show you what's been marked as Plaintiffs' Exhibit 4832. Can you identify that notebook for me?

A. Yes. This is a book of computer printouts.

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Q. And can you just identify for me the table of contents. That's on the first page; is that right?
A. Yes.
Q. And you've got some identifiers there, M1, M2 and so on. What do they refer to?
A. Well they're computer acronyms. They're directory --
They would mean something to the computer. M1 and M2 doesn't stand for anything in particular, except that's a directory where you'd find that information.
Q. Let me show you what's been marked as Plaintiffs' Exhibit 4833. Those are notes in a folder; is that right?
A. Let me describe it differently. This is a computer directory. It has some handwritten notations, but that's not the important aspect.
This computer disk, which does not contain very much information because we're not talking about a massive thing here, was sent to you quite recently, --
Q. I believe we got it yesterday --
A. -- one or two days --
Q. -- or the day before.
A. And it contains some corrections that have only

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minor impact on various computer programs that I had sent you previously.

Q. Okay. So those are your notes or notes prepared by someone under your direction.

A. The printing of the directory was done by Mr. Harvey.

Q. Let me show you the folder that has been marked as Plaintiffs' Exhibit 4834. Can you identify for me the contents in that folder?

A. Yes. These are my notes, but they have a common character, they result from my attempt to figure out the structure of the various computer materials that were provided by your experts and how they interrelate, what program flows to what program.

Q. How many pages of notes do you have in that folder?

A. Eight.

Q. Now you've also got a box of materials as well?

A. Yes.

Q. What's in the box?

A. More notebooks.

(Plaintiffs' Exhibit 4835 was marked for identification.)

BY MR. HAMLIN:

Q. Let me show you what's been marked as

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Plaintiffs' Exhibit 4835. That's a notebook; right?
A. Yes.
Q. Can you tell me what it is, just generally?
A. Yeah. It's a bunch of computer code. Judging from the first page, it's relating to the core model.
Q. This was prepared by you or someone under your direction?
A. Yes.
Q. All right. Show me the next item that you have in the box.
A. I have a copy of the Zeger report.
(Plaintiffs' Exhibit 4836 was marked for identification.)
BY MR. HAMLIN:
Q. I show you what's been marked as Plaintiffs' Exhibit 4836. This is a copy of the Zeger report; is that right?
A. Yes.
Q. You see at the top it has WW; is that right?
A. Yes.
Q. Those are your initials?
A. Yes.
Q. So this is your copy of the Zeger report?
A. Yes.
Q. I don't want to go through every page, but I see

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that there are some notations. Were those notations either put there by you or someone working for you?
A. Yes.
Q. What else do you have in the box?
Can -- can I hold on to that for just a moment?
What's the next item that you have in the box?
A. It's a binder.
(Plaintiffs' Exhibit 4837 was marked for identification.)
BY MR. HAMLIN:
Q. Sir, I'm handing you what has been marked as Plaintiffs' Exhibit 4837. Can you identify this notebook for me?
A. Yes. It's a -- it contains computer output relating to the refined disease model.
Q. That is plaintiffs' refined disease model?
A. Yes.
Q. What other items do you have in the box?
(Discussion off the stenographic record.)
(Three-ring binder handed to Mr. Hamlin.)
(Plaintiffs' Exhibit 4838 was marked for identification.)
BY MR. HAMLIN:
Q. Sir, I want to show you what has been marked as Plaintiffs' Exhibit 4838. Can you tell me what this

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notebook is?
A. Computer materials relating to the calculation of SAFs from the diminished health status model and refined disease models.
Q. When you say SAF, you're referring to Smoking-Attributable Fraction?
A. Yes.
Q. What's the next item in your box?
(Three-ring binder handed to Mr. Hamlin.)
(Plaintiffs' Exhibit 4839 was marked for identification.)
BY MR. HAMLIN:
Q. I want to show you what has been marked as Plaintiffs' Exhibit 4839. Can you tell me what that notebook is?
A. Yes. It's computer materials relating to plaintiffs' nursing home model.
Q. Okay. Again, that notebook was prepared by you or under your direction; right?
A. Yes.
Q. What's the next item in the box?
(Three-ring binder handed to Mr. Hamlin.)
(Plaintiffs' Exhibit 4840 was marked for identification.)
BY MR. HAMLIN:

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Q. I show you what's been marked as Plaintiffs' Exhibit 4840. Can you identify that notebook for me?
A. It's computer materials related to plaintiffs' diminished health status model.
Q. That was prepared by you or under your direction?
A. Yes.
Q. Pull out the next item in your box.

(Three-ring binder handed to Mr. Hamlin.)

(Plaintiffs' Exhibit 4841 was marked for identification.)

BY MR. HAMLIN:
Q. Let me show what's been marked as Plaintiffs' Exhibit 4841. Can you identify that for me, sir?
A. Yes. It's computer materials related to plaintiff expert computer models. This aspect in this binder is related to the data preparation, early steps of the models.
Q. And this was, again, prepared by you or under your direction?
A. Yes.
Q. Is there anything else --
A. No.
Q. -- in that notebook -- or in that box?

All right. Let's turn to your expert report,

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which has been marked as Plaintiffs' Exhibit 4827. But feel free to make reference to your notebook as well. I'm not restricting you in any way.

Did you prepare the first draft of this report? Or -- yeah. Go ahead.

(Discussion off the stenographic record.)

A. Okay. Did I prepare the report?

Q. Yeah, let me ask it again.

Did you prepare the first draft of this report?

A. I don't think there is a recognizable first draft of the report, but I certainly participated -- or I had my fingers on the keyboard with respect to the very first steps of writing this report.

Q. Did you submit drafts to counsel for comment?

A. No.

Q. Did counsel comment on the report before it was put in final form?

A. I don't recall a specific comment, but I am aware of some -- something like that, so I'll just do my best to be responsive here.

Q. Did you incorporate any of counsel's comments in this report?

A. I was about to explain that. I may be non-responsive, but it might be helpful anyway. What's on the top of my head here is page 13 where I

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see a phrase about supplementing in accordance with the court's order of March 13, '97. I recall that that was a lawyer-suggested final paragraph.

Q. Did you incorporate any other comments of counsel into your final report which you have in front of you?

A. I don't know if this qualifies or not, but I did ask them for the amended complaint so that I could write the material that's in the middle of page two that references the amended complaint. That's -- that's all I can think of that's here that's connected to lawyer comment.

Q. Did you talk to any other experts in this case at any time during the litigation?

A. When would that start, that time?

Q. Any time.

A. No, it doesn't start at any time. You said "at any time during the litigation." I know Don Rubin, and I've talked to him in the past, so I'm wanting a date after which --

Q. Okay. Have you talked to Don Rubin about this case?

A. No, I don't think so. Can't recall a conversation with him about this case.

Q. Have you talked to Don Rubin about any of the

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Attorney -- Attorneys General cases?

A. I talked to him about -- about some technical point in -- before I got to working on the Minnesota case. And if I think real hard, maybe I can remember what we talked about, but right now I can't.

Q. Did you confer with any expert in this matter in preparing your expert report?

A. No.

Q. Did you talk to any tobacco company executives about the health effects of smoking?

A. No.

Q. If we go to page one of your report, you state that you have three principal conclusions. Do you see that?

A. I haven't found it yet.

Yes, I see it.

Q. Okay. And you say that the first one is that Zeger answers the wrong question; right?

A. Yes.

Q. Then you say that the right question is to attempt to measure the defendants' alleged wrongful conduct on health-care costs paid for by plaintiffs; right?

A. I don't see where you're reading, but that sounds consistent with what I would have written.

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Q. It's the second full paragraph on page one.
A. Yes, I see that.
No, wait a minute. No, I don't -- I don't see where you were reading, but I agree with what you said.
Q. The last sentence in the second full paragraph states, "Zeger's analysis does not even attempt to measure the effect of defendants' alleged wrongful conduct on health care costs paid for by plaintiffs;" right?
A. Right.
Q. I take it that you believe the right question is to attempt to measure the effect of defendants' alleged wrongful conduct on health-care costs paid for by plaintiffs; right?
A. Yes.
Q. Now have you done that?
A. No, I have not been asked to -- to do what essentially is the plaintiffs' model.
Q. Well what -- what I'm asking you is have you done a model that measures the effect of defendants' alleged wrongful conduct on health-care costs paid for by plaintiffs?
A. No.
Q. Okay. Now --

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So you don't have any idea what difference measuring that effect would make to plaintiffs' damages as you sit here today; right?

A. I think I have an idea, but I haven't done -- I haven't undertaken that project. Haven't been asked to.

Q. Do you know that tobacco company -- strike that. Do you know if the tobacco companies have done that?

A. No idea what they've done.

Q. Have you ever asked them?

A. No.

Q. Can you identify for me existing databases that you would use to answer that question?

A. That I would use if I were asked to do it, I take it?

Q. Correct.

A. That I would use.

I -- I think I would sample from existing and not-yet-existing data in Minnesota.

Q. So what databases would you use that exist today?

A. I would --

Well if the information exists, I would assemble through a statistical means, to avoid bias,

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information that would be in Minnesota on health-care costs paid by the state, and information of the kind you'd find in health records of individuals.

Q. Can you identify for me a database that you would take off the shelf today to answer this question?

(Telephone call interruption. Discussion off the record.)

A. During the interruption I've been reflecting on this word "shelf." I don't intend this as a quibble, but the kind of information I'm looking for is probably on shelves. It may even be in computerized form, though I imagine some is not. But I -- it doesn't have an acronym that I know of, so I --

If by "off the shelf" you mean something that I can send for in the mail that has an acronym, then I would not probably be after that data. It would be your computer billing records and health information on people -- smoking information on Medicaid people in Minnesota.

Q. Now you have a list of databases here on Plaintiffs' Exhibit 4830.

A. Yes.

Q. Can you identify which of those databases you would use to answer this question of alleged wrongful

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conduct?

A. If I were asked to do this? I --

That wouldn't be where I would start. I would -- I don't --

I have difficulty with each of these, and I think there's better, cheaper, more accurate ways to approach the problem.

Q. All right. So you wouldn't use any of the databases listed on that chart.

A. Since I haven't been asked to do it and I haven't thought about it very hard, I don't know exactly what I would do if I really got into it. But I was trying to do better for your question than just to say "I don't know," and --

Q. What I'm asking is if you know as you sit here today what existing databases you would use, and I take it that the answer to that question is no, you don't know.

A. No, I didn't say that. I --

You're making a distinction that I don't want to make because I think it is a false and not-helpful distinction. What I would do is get information about, through a sampling where I, the statistician, get to control the sampling scheme, about the people that are in Minnesota -- for short I'll just say

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Medicaid, skip over the Blue Cross or GMA -- GAMC complication -- in Minnesota on Medicaid, and the subject of payments that are being claimed. That's -- that's where I would start.

Now if I found that I needed something else after I got to that point, then I would -- I would go on to that next step. But I might not need anything else at all.

Q. All right. But as you sit here today, you can't tell me that you would use any of the existing databases that are listed on your Plaintiffs' Exhibit 4830; is that right?

A. I can't say for sure that I would. It wouldn't be where I would start.

Well the -- the billing and enrollment data I would use that's on Exhibit 4830. I don't -- you know, I'd want -- I assume I would use it. That's where, I take it, the -- sort of the check stubs are for the dollars being claimed.

Q. When you say "check stubs," what you mean is that's where the claims information is; right?

A. Well I'm not intimately familiar with how the state of Minnesota keeps their records, but my understanding is that --

Well what I would want is the cash flows related

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to the thing being claimed, and I -- from what I read, they're recorded in this database.

Q. Yeah. The dollars paid out by Medicaid are recorded in that database; --

A. That's what I understand.

Q. -- right? Okay. But --

As I understand it, then, you think that you would have to start by doing some additional sampling that hasn't already been done; right?

A. I would gather --

Yes, you could call it that. Or you could just say gathering that particular data. That seems like the most appropriate data to me, and that's where I would -- that's the first thought that I have in response to your question about what I would do if I were asked to do this work.

Q. When you said "appropriate data," what were you referring to?

A. People in Minnesota on Medicaid.

Q. And what existing databases have that information currently?

A. Well I detect in your question a distinction that I don't make, but I'll answer -- I'll just --

Without the editorializing, I'll answer, but I meant it only to be helpful. Existing databases, in

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my understanding of the concept of data and database, include the kind of data that you would find on shelves in health institutions, and I would gather that information.

Q. My question was: What databases have Medicaid information in them about people on Medicaid in Minnesota? To your knowledge. I'm -- I'm just trying to find out what you know about it.

A. And I'm trying to make myself clear.

The billing information, what I call for short the check stubs, payments, and health information on people from Minnesota that are the object of the check stubs.

Q. Okay.

A. And I -- and other people, too, so you could understand the full story.

Q. Now the billing information would be in the claims data on Exhibit 4830?

A. That's what I understand.

Q. Okay. Where would the health information come from?

A. It would be in different places for different individuals.

If, let's say, you were one of those individuals, you and I could -- you better than I --

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could try to ascertain where your health records are. Probably in some doctor's office or hospital or wherever, wherever they're kept. And in addition to the existing records, I would be very interested in supplementing them with additional inquiry from -- based on questions I would ask you.

Q. Do you have any idea of any database in Minnesota that contains health information for Medicaid recipients?

MR. BIERSTEKER: I'm going to object to form.

A. Yes. The kind I've been talking about.

Q. Okay. Can you identify the databases?

A. What do you mean?

MR. BIERSTEKER: Object to form.

A. I can't identify --

Q. Does it have a name?

A. Health records.

Q. Is there a health records database that you know of that exists in Minnesota that describes health information for Medicaid recipients?

MR. BIERSTEKER: Object to form.

A. I think, yes. But I see you are implying with your question a distinction which I think is not helpful and not --

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Q. I'm just asking a question. I'm not implying any distinctions. I'm just trying to get an answer.
A. Then let me tell you how I understand your question so that my answer will be better understood by you.

When I understand data and database, I could not restrict that concept to something that has a commonly used three- or four-letter acronym that you can order through the mail. I would include and importantly in this case I include health records, which are organized probably in various ways, either computerized or in file folders and in hospitals and doctors' offices. That is to me a source of data, and I'd include it in my response to your question.
Q. Have you ever collected that data for any state?
A. I've done some sampling of health records before, yes.
Q. For Medicaid people?
A. No, not specifically for this application.
Q. So as you sit here today, you don't know of any Medicaid health-care information in Minnesota that you can identify with any specificity; right?

MR. BIERSTEKER: I think that question's been asked and answered, but you may go ahead, doctor.

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A. I think I do. I don't think it's a stretch on my part to suppose that you have health records in Minnesota, and you probably know where they are, and it's probably not that hard to get our hand on it.

Q. So my answer --

The answer to my question is --

A. I do know.

Q. And do you know if they're collected in any one place?

A. They would be in a variety of places.

Q. Why don't you tell me where you think these health records are.

A. Health records for people in Minnesota?

Q. Who are on Medicaid.

MR. BIERSTEKER: Asked and answered.

A. Well I'd want --

I'd want to inquire where they are, but I can tell you without inquiring where I would expect them to be. I'd expect them to be in the control of doctors and -- and health institutions.

Q. So what you would want to do is collect every health record for every Medicaid recipient in Minnesota.

MR. BIERSTEKER: Objection, mischaracterizes the testimony.

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Q. Is that correct?
A. That would probably be uneconomic, but --
That would be marvelous if we had unlimited budgets, but probably not the economic way to do it.
Q. Would you want anything else other than health information?
A. Smoking information.
Q. Okay. Where is that collected for Medicaid recipients in Minnesota?
A. Well I would have to inquire, but I suppose in some instances it would be recorded in health records. And others, you could ask people.
Q. Do you know of an existing database that has that information?
MR. BIERSTEKER: Object to the form of the question.
A. Not differently than we've spent a lot of time discussing.
Q. Would you need any other data to answer this question about the effect of defendants' alleged wrongful conduct on the health-care costs paid for by plaintiffs other than what you've identified?
A. I would --
I know what I would want to get. I would want to supplement the things we talked about with

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information that would come from inquiring of individuals to get additional information.

Q. So you'd want to do a separate survey yourself; is that right?

A. Yeah. That's one way --

That's an okay way to say it. But maybe a more straightforward way is I would want to ask questions of people in Minnesota on Medicaid, record the answers, and include that in the data.

Q. Do you know if there's any such data that exists today?

A. Well I'm sure there's some. BRFFS is an example of some. But I'd want to do something targeted at the issue that would be better than what is collected for more general purposes.

Q. Do you know of any other database other than BRFFS that has collected information on smoking for Medicaid recipients in Minnesota?

A. Probably a scattering of it in the larger national databases, but they're not specifically targeted at the population that I'd be -- that -- that are at issue.

Q. So you don't know of any other databases other than BRFFS that has collected this information on smoking; right?

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MR. BIERSTEKER: Object to form.

A. Other than what I've said.

Q. Well what you've said is that you think there might be a smattering in national databases, but that it is not specific to Minnesota; is that right?

A. Right. Minnesota being part of the nation.

Q. Did you say "right" to that, or --

A. Right. I was going on to explain briefly. Minnesota is part of the nation, so the national databases may have some Minnesotans included, but it's not targeted at Minnesota and it's certainly not targeted at the particular group at issue.

Q. Is there any other information that you would want in order to answer this question?

A. No. I think I've hit all the categories of where I would start. And then I would not be able to anticipate exactly how the analysis would develop from that point until I got to that point.

Q. Now your second principal conclusion on page one is that Zeger studies the wrong population. Do you see that?

A. Yes.

Q. Now Zeger used the National Medical Expenditure Survey information; correct?

A. Yes.

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Q. And is it your understanding that poor and low-income people were surveyed in that particular survey?

A. In NMES you mean?

Q. In NMES.

A. They're included.

Q. And that smoking information was obtained in NMES?

A. Yes.

Q. Is it also your understanding that Zeger used BRFFS, B-R-F-F-S?

A. Yes.

Q. And people on BRFFS were asked if they were on public aid; right?

A. I think that's right, but I'd --

Just going by memory that that's in there. I think that's right.

Q. And people were also asked if they smoked; right?

A. Yes.

Q. Zeger himself used the Minnesota Medicaid claims data; right?

A. Yes.

Q. And he used the Blue Cross Blue Shield Minnesota claims data; right?

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A. Yes.
Q. And the Minnesota Medicaid claims data describes the amount of money paid by the state of Minnesota for Medicaid; right?
A. Yes.
Q. So the actual dollars are collected in that database; right?
A. That's what I understand.
Q. And in the Blue Cross Blue Shield of Minnesota claims data there are -- or there is a collection of actual dollars paid by Blue Cross Blue Shield for that population; right?
A. That's what I read, yes.
Q. And I take it that you have reviewed the -- well strike that.
Have you reviewed the complaint in this matter?
A. I've read it. I haven't studied every page, but I've read it.
Q. And you understand that the state of Minnesota is seeking reimbursement for Medicaid payments made for smoking-attributable health-care services; correct?
MR. BIERSTEKER: Object to the form.
A. Do we have a copy of that? That's not quite the way I remember it.

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Well I've got some excerpts from it in my --

We don't have a copy.

Q. What is your memory of this?

A. Well I'm doing better than my memory because I wrote down part of it on page two, that -- so I have some quotes here that from paragraph 88, plaintiffs seek damage as a direct and proximate result of defendants' conduct. That's what it says.

Q. Well is it your understanding the state of Minnesota is seeking reimbursement for Medicaid payments?

A. Not -- not all Medicaid payments.

Q. No. Is it your --

Is it your understanding that the state of Minnesota is seeking reimbursement for Medicaid payments paid for smoking-attributable diseases?

A. No, that's not the way I understand it.

Q. Okay. What is your understanding of what the state of Minnesota is seeking?

A. The Medicaid --

Reimbursement for any excess -- any difference in the amount of payments they've paid for, let's say the case of Medicaid, as a -- as a direct and proximate result of defendants' conduct.

Q. And those are Medicaid payments; correct?

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A. Well they're --

In addition to Medicaid, we have those other two categories. But the answers are going to get long if we keep trying to include that, so for short, Medicaid.

Q. Would you agree that the population that the state of Minnesota is seeking reimbursement for is the Medicaid population?

A. Not -- that's --

No, I don't think I'd agree with that sentence. I agree that that is the population, a portion of which --

I see no good way to finish this sentence.

A portion of the payments to that population would be involved, yes, but not all of them.

Q. When you say "not all of them," you mean not all the payments.

A. Yes.

Q. Right. And a portion of the payments to the GAMC population is also involved; right?

A. Yes.

Q. And a portion of the payments to the Blue Cross Blue Shield Minnesota population is also involved; correct?

A. Yes. That portion that is identified as the

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difference between the conduct complained of and -- and the alternative.

Q. Population is the Blue Cross Blue Shield Minnesota population; correct?

MR. BIERSTEKER: Object to the --

Q. It's not some other population.

MR. BIERSTEKER: Object to the form of the question.

A. Well there's Medicaid, there's GAMC, and Blue Cross Blue Shield, which are the populations from which a portion yet to be determined and requiring a long sentence to explain is involved, yes. Not some other population.

Q. Right. That's all I'm asking.

A. Okay.

Q. I just want to identify the population.

A. I'm struggling, but --

Q. Now your third principal conclusion on page two is that Zeger does not reliably measure health-care costs attributable to smoking. Do you see that?

A. Yes.

Q. What do you mean by the term "reliably?"

A. I mean I would --

An estimate is reliable if there is a basis that gives one confidence in its accuracy.

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Q. So when you say that Zeger does not reliably measure health-care costs, you are taking issue with the statistical methods that Zeger used; right?
A. That would be a part of it.
Q. And specifically the application of those methods; correct?
A. Well it's the -- it's the whole thing. When I say "reliably," I meant what I defined a minute ago.
Q. Well what is -- strike that.

What forms this basis that gives one confidence in a model?
A. Well that's the problem. I don't see it. It's not formed. So perhaps you mean in a hypothetical alternative situation, what kind of bases might give one reliance?
Q. That's not what I mean.
A. Well then in this case I don't see it here.
Q. Generally speaking when you talk about a basis that gives one confidence in a model, what are you referring to?
A. Well I didn't --

I don't mean to refer to confidence in a model, I mean to refer to confidence in an estimate or result.
Q. All right.

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A. Let me --

You stop me if you think I'm going off on a tangent here, but the best way I can think of to answer this is by way of a hypothetical, or at least an abstraction.

If a particular mathematical formula is used to estimate some quantity and I were wondering if that estimate could be relied on, I would want to learn the assumptions that are involved in the derivation of that particular estimating formula, and then I would want to see, or have somebody show me if they've already done it, that those assumptions are satisfied in the particular application. That would do it for me.

Q. Now is your opinion that you don't agree with Zeger's assumptions in the estimating formula?

A. No. I was just answering your question about basis for reliability in a general setting.

Q. Okay. Do --

Well let me ask you this.

A. Go ahead, ask --

Q. Do you disagree with any of the statistical methods that Zeger used?

MR. BIERSTEKER: Object to the form.

A. Yes, I can think of some specific methodological

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uses that he's made that I would disagree with.

Q. Can you give me an example?

A. One has to do with his use of and reliance on inverse Mill's ratios. I think I wrote up in here something about weighted least-squares, but I don't see it. Here's a section on imputation. Many of it --

I have examples that are actually in the report. Yes. And on page 12 I see some -- some writing here about the improper use of weighted least-squares. Those are examples.

Q. Now does your disagreement with Zeger relate to basically the use of certain statistical methods?

A. It relates to that. Those are some of the problems I've got.

It's not a real challenge here to figure out my basic opinion because I've written it in the report.

Q. Now in the course of your work for tobacco companies, you testified that you have obtained data from the American Cancer Society; right?

A. Yes.

Q. And I think you identified this data as ACS I and II; right?

A. Right.

Q. Is there also data from the American Cancer

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Society known as CPS I and II?

A. That's the same thing.

Q. It's the same thing.

A. Yes.

Q. Now I believe you testified that you have used this data from the American Cancer Society as a basis for certain opinions in other cases involving the defendant tobacco companies; right?

A. That's true.

Q. Have you used or relied on this data as a basis for any of your opinions in the Minnesota case?

A. The ACS I and II data is what you mean when you say "this data?"

Q. Yes.

A. There's nothing in my report that traces back to that data, but it does inform me generally about the subject of relative risks and smoking and health, so there may be some questions that could come where the reason I know the answer is because I've studied that data.

Q. But the opinions in your expert report are not based on any data from the American Cancer Society; right?

A. That's a little --

It's a little bit unclear. Let me go through

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and see if I can find an example where it becomes not quite clear.

Let me go speedy -- in a more speedy way here. I thought of a way to make the point that I'm grappling with here.

The Surgeon General's report, particularly the '89 report, is related to smoking and health and is very likely to be discussed, and you may even ask me questions about it. That data that we're talking about is data used to come up with the calculations involving smoking and health and risk in that Surgeon General report, so if we get into anything about that, then that data shows itself indirectly.

Q. Okay. My question was whether there are any opinions in your expert report which has been marked as Plaintiffs' Exhibit 4827 which are based on the American Cancer Society data?

A. Yes, I think so, at a general but important level. Let me take an example of confounding. And I've described in the report the problem with confounding, failure to account for things like diet and exercise, in doing these kinds of calculations. Well the reason I understand about diet and exercise and confounding is because I spent a lot of time studying smoking and health and I am aware of those

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relationships. It came from that data. But I didn't particularly cite it here. It's part of my background knowledge and I used it when I was writing this report.

Q. Did you produce the American Cancer Society data to us?

A. I don't think so.

Q. And yet you're relying on it in your report; is that right?

A. Only in the sense that I've described. It's part of my background understanding of smoking and health, not in any --

There's no particular cite, no particular number here that comes from that. But I can't escape that I know some things about smoking and health because I've seen that data.

Q. Well what I'm asking you is if you formulated any specific opinions in this expert report that are based directly on the American Cancer Society data?

A. No. I don't think any that are of that category, no.

Q. Let me direct your attention now to page two of your report. And here you again reference your contention that Dr. Zeger answers the wrong question; correct?

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A. Yes.
Q. And you think that the right question is that one has to measure the effect of defendants' alleged misconduct on medical-care expenditures; correct?
A. I think that's the question that plaintiffs seek damages for.
Q. All right. That's your understanding of the question.
A. Yes.
Q. All right. Now you say that such an analysis would necessarily compare the plaintiffs' actual medical costs in Minnesota to what they would have been if defendants' alleged wrongful conduct had not occurred. Do you see that?
A. I don't see it, but I know I wrote it.
Q. Let me direct your attention to the last full paragraph on page two, the second sentence.
A. Yes, I see.
Q. Now as I understand it, you have not done this calculation; correct?
A. Right, I have not done the plaintiff calculation.
Q. I'm asking if you've done the calculation.
A. I have not.
Q. Now as you sit here today, can you testify that

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you in fact could do this calculation?
A. I think I could.
Q. Okay. But you've made no effort to do so; right?
A. I haven't been asked to do it.
Q. Now you say that the analysis has to include certain things.
A. Where -- where are you?
Q. I'm at the bottom of page two.
A. Yes, I see it.
Q. The first is measuring the effect on the populations over time; right?
A. Correct.
Q. All right. Let me direct your attention to the second bullet point, which is on page three, and you say that the "Health care expenditures due to smoking that were unaffected by defendants' alleged wrongful conduct, such as smoking by the recipients of health care funded by plaintiffs occurring before defendants' alleged misconduct, should not be attributed to that conduct." Do you see that?
A. Yes.
Q. And then you go on to say, "For instance, Zeger includes in his estimates health care expenditures for people who smoked in the early 1900's and quit

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long ago."

What database are you referring to for that statement?

A. I think that's from NMES, but I can take a moment to check if you want.

Q. Well let's go through this. I may have a list of things that you'll need to check.

A. Well I'll --

Okay. Let's make a little list. Then I'll -- I'll do it during a break.

Okay.

Q. And next you say that "Of the people who Zeger identifies with lung cancer and COPD, 88 percent started smoking before 1950."

And what database do you base that statement on?

A. The same.

Q. NMES?

A. Subject to checking, I think that's where it is.

Q. And you also state "Some started smoking near the turn of the century and quit smoking as long ago as 1920."

What database are you relying on for that statement?

A. The same.

Q. The NMES database?

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A. Yes, subject to checking.
Q. Do you know how many people in NMES started smoking before 1954 and quit before 1954?
A. Not off the top of my head.
Q. Have you ever looked at that question?
A. Not that I --
I don't have a photographic memory of all the computer output. It's possible that it's been calculated in a part of the materials that we've marked here, but I don't recall it specifically.
What was the question again, started -- started before '54?
Q. How many people in NMES started smoking before 1954 and quit before 1954. And my question to you is --
A. Yeah.
Q. -- whether, as you sit here today, you know the answer to that question.
A. I certainly don't -- don't know it off the top of my head. I --
Q. Have you looked at that question?
A. This is --
I'd have to get into the binders in the -- in the area in which I've calculated quitting dates and starting dates and see if 1954 is in there.

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Q. Have you looked at whether or not removing those people from plaintiffs' model makes a difference in plaintiffs' damages?

A. I haven't done that calculation.

Q. Now let me ask you this: Suppose a person started smoking in 1950 and continued smoking to this day and developed a smoking-attributable disease paid for by the state of Minnesota after 1978. Is it your opinion that the state cannot make a claim for any smoking-attributable expenditures for that person?

A. No.

Q. Let me direct your attention to the second bullet point. Basically you say that proper comparison should be to a former smoker; right?

A. Second bullet point on page three you mean. Third bullet point.

Q. Second bullet point, right.

A. Yeah, I see that.

Q. You say that "If the alleged wrongful conduct influenced some smokers to continue smoking who otherwise would have quit or quit sooner, then the analysis would need to estimate the difference on their health care expenditures if they had quit or quit sooner." Do you see that?

A. Yes.

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Q. Now have you done that calculation?
A. No.
Q. Do you know what difference it would -- well strike that.
Do you know if it would make any difference in plaintiffs' damage calculation?
A. I expect it would.
Q. Do you know what that difference is?
A. Well it would be a completely different calculation, so --
This is not like something you can plug in to their calculation. It would have to be a comparison of their calculation with a calculation I haven't done yet.
Q. All right. So as you sit here today, since you haven't done that calculation, you don't know what the difference would be; right?
A. I have an idea that it would be a huge difference.
Q. But you don't know specifically what the difference would be because you haven't done the calculation; correct?
A. I haven't done the calculation.
Q. And thus you wouldn't know what the difference would be.

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A. Not precisely.
Q. Now would you agree that there are health benefits which result from quitting smoking?
A. I -- I can tell you about relative risks for people who have quit smoking.
Q. I'm not asking you about relative risks of people who quit smoking. I'm just asking you whether you agree or disagree that there are health benefits which result from smoking cessation?
MR. BIERSTEKER: Object to the form.
A. I would agree in the sense of reductions of relative risk.
Q. Does the reduction of relative risk translate into a health benefit?
A. That's unclear, but --
Q. Oh, you don't think it does?
A. It could be characterized that way, right. I'm not quarreling with that characterization. I just think that there's a gap there that raises questions of confounding and other matters that are more difficult.
Q. Now would you agree that smoking cessation is clearly beneficial in reducing the risk of lung cancer compared with continued smoking?
A. I --

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In this sense I would agree, that the continuing-smoking compared to the quitting-smoking groups that are described in your question, there's a lower relative risk among the quitters than among the continuers.

Q. And in fact the relative risk gets lower over time for the quitters; right?

A. Yes.

(Discussion off the stenographic record.)

(Plaintiffs' Exhibit 4842 was marked for identification.)

BY MR. HAMLIN:

Q. Let me show you what has been marked as Plaintiffs' Exhibit 4842. I represent to you that this is a portion of the 1990 Surgeon General's report entitled "The Health Benefits of SMOKING CESSATION." Do you see that?

A. Yes, appears to be.

Q. All right. Specifically it's a portion of the preface, pages v and vi.

Now in your work for the tobacco companies, have you had an opportunity to review the 1990 Surgeon General's report?

A. Yes.

Q. Let me direct your attention to page v.

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A. Roman v?
Q. Roman v.
A. Yes.
Q. Specifically I want to direct your attention to the sentence in the last -- or strike that -- in the third full paragraph that begins, "Taken together...."
A. Yes.
Q. All right. Specifically the sentence reads, "Taken together, the evidence clearly indicates that smoking cessation has major and immediate health benefits for men and women of all ages." Do you see that?
A. Yes.
Q. Do you agree with that statement?
A. I generally agree, if we understand it to refer to reductions of relative risk.
Q. Let me direct your attention to the section marked "Overall Benefits of Smoking Cessation" on Roman numeral v.
A. I see it.
Q. First sentence there states, "People who quit smoking live longer than those who continue to smoke." Do you agree with that statement?
A. On the average I agree. It's not true for

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everybody.
Q. But on the average --
A. Yes.
Q. -- it's a true statement; right?
A. For the groups that are studied here, yes.
Q. Let me direct your attention to Roman numeral vi. In the first full paragraph there's a reference there to coronary heart disease. Do you see that?
A. Yes.
Q. And it states that "Smokers have about twice the risk of dying from CHD compared with lifetime nonsmokers." Do you see that?
A. Yes.
Q. And then the Surgeon General goes on to say, "This excess risk is reduced by about half among ex-smokers after only 1 year of smoking abstinence and declines gradually thereafter." Do you agree with that?
A. I'd have to check the underlying data, but I assume they're quoting it correctly. I don't have all the pages here to check it. The first part of the sentence, I recall -- I think that number is right, and then whether it's half after one year, I'd have to check.
Q. But assuming that it accurately describes the

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studies in the report, do you agree with that sentence?

A. Well if in actuality it accurately describes the studies, then I agree. That's what I think it's trying to do, describe the results of the studies.

Q. Then the Surgeon goes on -- Surgeon General goes on to say, "After 15 years of abstinence the risk of CHD is similar to that of persons who have never smoked." Do you agree with that statement?

A. I'd have to check, but I wouldn't be surprised that that's right. I just don't have the rest of the report to double check.

Q. You don't know of any scientific studies that contradict that finding; correct?

A. Oh, I believe it's correct.

Q. Okay.

A. The relative risks are about the same after 15 years. I think that's right.

Q. Then in the next paragraph the Surgeon General references stroke. Do you see that?

A. Yes.

Q. And it says, "After quitting smoking, the risk of stroke returns to the level of people who have never smoked; in some studies this reduction in risk has occurred within 5 years, but in others as long as

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15 years of abstinence were required." Do you agree with that statement?

A. The part about that the studies vary, is that -- or just the general -- the difference --

Q. I'm asking whether you agree with that statement, that entire statement.

A. Well I can't tell you without getting into the studies. It's referring to a couple of different studies and I don't recall --

I'd have to check it. I don't --

Sitting here, I have no basis to disagree with it, but I couldn't tell you. It doesn't say which studies it's talking about, and I don't have them here anyway.

Q. But as you said, as you sit here today you don't have any basis for disagreeing with the statement.

A. No. I just don't have the materials in front of me that would help confirm this.

Q. And then in the next paragraph the Surgeon General references COPD. Do you see that?

A. Yes.

Q. And he states, "With sustained abstinence from smoking, the rate of decline in lung function among former smokers returns to that of never smokers, thus reducing the risk of developing COPD." Do you agree

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with that statement?
A. Yes, in the same sense as all the others, that I haven't got a basis to check it, but that's my memory, that the relative risk declines.
Q. Now would you agree that if you use a former smoker or former smokers as a basis for comparison, you must take into account the health benefits of smoking cessation?
A. I don't understand the question.
Q. Let's go back to page three of your report. In the second bullet point you talk about the comparison would be to a former smoker. Do you see that?
A. Yes.
Q. My question to you is: Do you agree that if you use former smokers as a basis for comparison, you have to take into account the health benefits of cessation?
A. Well the question seems incomplete, but in any reasonable way that one might complete the question, the answer, I think, is yes. But you -- you haven't really been clear as to exactly what calculation you're talking about.
Q. Well let's just refer to the analysis that you are referring to in that bullet point. All right?
A. Yes.

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Q. Now the question is: Would you agree that former smokers -- that if you use former smokers as a basis for comparison --

A. Well that's the part where I fall off the trolley.

Q. Okay.

A. Elaborate on that. What do you mean by that?

Q. Well those aren't my words. I took that right out of your report.

A. Okay.

Q. You say the comparison would be to a former smoker.

A. Okay.

Q. Those are your words.

A. So you mean what I meant when I was writing this. That's fine.

Q. Those are your words; right?

A. You bet.

Q. I'm just -- just asking about your report.

A. Okay. I'm -- I'm -- I'm on the train now. Okay.

Q. And my question is: If you use former smokers as a basis for comparison, you do have to take into account the health benefits of smoking cessation; correct?

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A. Yes.
Q. All right.
A. Okay. I'm sorry, I didn't track that your question was picking up on my language. I was trying to figure out your question. But I'm with you now.
Q. And would you agree that some smokers quit smoking because they contract a disease such as lung cancer or COPD?
A. Might be.
Q. I mean you don't have any basis for disagreeing with that; right?
A. No.
Q. No, you don't have any basis; right?
A. You lost me.
Q. Okay. I just want to make sure we're in agreement here.
A. Yes.
Q. Okay. And you agree that some smokers may quit smoking because they contract a disease such as lung cancer or COPD.
A. They might.
Q. Now let's suppose you're going to compare a group of current smokers in 1997 with former smokers who quit in 1960. Do you understand me so far?
A. Yeah.

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Q. Now the former smokers had basically quit for 37 years; right?
A. Yes.
Q. Would you agree that their health-care risks from smoking are not the same as those of the current smokers in 1997?
A. It would depend. They might be, might not be.
Q. So you're saying that they may have the same health-care risks as current smokers in 1997.
A. Might or might not. It would depend.
Q. Now for those that don't have the same health-care risks as current smokers in 1997, their health-care risks are more like never smokers; right?
MR. BIERSTEKER: Object to the form. I'll object to the form. I'm sorry, Tom.
A. Might be, might not be.
Q. What does that mean?
A. Well it means you can't say for sure the answer is yes.
Q. "The answer is yes."
A. You can't say the answer is yes, because might be yes, it might be no.
Q. But generally speaking you couldn't make any conclusions about a population of former smokers who

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quit in 1960 with respect to their health-care risks; is that what you're saying?

A. Well I could if I studied it.

Q. But in preparing a model where you would compare those former smokers with current smokers in 1997, you would agree that you would have to take into account the health-care benefits from smoking cessation as evidenced by the Surgeon General; right?

A. In -- in terms of different relative risks, yes, I agree with that.

Q. Have you run the Zeger model using former smokers as a comparison?

A. I think former smokers are included in his model. That would require me to dig out the nitty gritty of his model, but I think in some places when he refers to smokers he includes former smokers.

Q. But have you run the model using former smokers as a basis for comparison with current smokers?

A. I've run his model, as best as I've been able to struggle to get it to go, as he sends it to me, and I believe that there are places where former smokers are in there.

Q. Yeah. I'm asking if you did any modification to the model where you made a comparison based on former smokers, as you have indicated on page three of your

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report should be the proper comparison?
A. I -- I haven't done what I had in mind when I was referring -- when I -- in my discussion on page three, but --
Q. So you don't know what difference that would make in the plaintiffs' damages; right?
A. No. That would be a --
What I had in mind there would -- would not be some simplification, it would be a quite different calculation. But I didn't want to make an error in my answer. I think there are some of his calculations where former smokers are included in -- in his comparisons, and have run those, but that's the way his model came to me, without my changing.
Q. I'm asking you if you made any modifications where you included former smokers as a comparison group where Zeger did not.
A. Oh.
MR. BIERSTEKER: Asked and answered.
A. There you go. I can get -- I can tell you. That is no.
MR. HAMLIN: Why don't we break here.
(Luncheon recess taken at 12:37 o'clock p.m.)

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AFTERNOON SESSION

(Deposition reconvened at 1:45 o'clock p.m.)

BY MR. HAMLIN:

Q. Let me direct your attention to page three of your report. Specifically, I want to direct your attention to the third bullet point on the page. It states, "Any changes in the number or characteristics of the recipient populations that would have occurred in the absence of defendants' alleged misconduct would necessarily be taken into account." Do you see that?

A. Yes.

Q. Now when you refer to "number," you're talking about the mortality of the recipient populations; right?

A. That's one --

That would be one aspect.

Q. I think you already agreed that people who quit smoking live longer than those who continue to smoke; right?

A. We were referring to the Surgeon General calculations, and for those populations they studied, found lower relative risk for mortality, and though I don't know if he calculated it, I would expect that

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would go hand in hand with the expected duration of life.

Q. Now what else are you referring to when you use the term "number" other than mortality?

A. Any other thing that would change the count of a population being studied.

Q. All right. And what are those things?

A. Well let's take nursing homes as an example. If you enter a nursing home or don't enter a nursing home, that would change the count in the nursing home. It wouldn't necessarily be a mortality issue.

Q. Would the same be true of going on and off Medicaid?

A. If you were counting Medicaid, it would.

Q. Can you think of anything else other than what you've just identified as affecting the number of the recipient populations?

A. At this level of abstraction, don't have any other specifics. If we had a specific population to discuss, maybe I could think of some other possibilities. But whatever the population is, the count of that population could vary.

Q. Well what I'm asking you, sir, is I'm asking you what you meant by the term "number" in the sentence in your report.

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A. I think I've explained it.
Q. So you referred to mortality and also changes in enrollment in the Medicaid program; right?
A. Yes.
Q. And you've also referred to people going in and out of nursing homes; right?
A. Yes.
Q. All of those would affect the count in the recipient populations that you're referring to on page three of your report; right?
A. Those are examples. It wouldn't --
I don't mean to rule out other possibilities.
Q. And all I'm trying to get is some kind of an understanding from you as to what you meant by that term "number."
A. I thought I gave you a good understanding.
Q. Is there anything else?
A. If you're looking for an exhaustive list, that is going to require us to get into a lot of specifics. But at the level we're discussing, let's take smoking as an example, if we were talking about a population of smokers, then --
Go ahead, you -- you seem to be --
Q. All I'm asking you is about any changes in the number of the recipient populations that you

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reference in your report. Okay?

A. Well that --

I'm trying to answer that. One of the populations that you could talk about as a recipient population is a group of Medicaid smokers in Minnesota, and that -- that population of that group would likely change in the context of the meaning of this bullet point.

Q. For reasons other than what you've already identified under the term "number?"

A. Like just somebody might quit smoking. He doesn't have to die to change the number in the population.

Q. All right. You also refer to any changes in the characteristics of the recipient populations that would have occurred in the absence of defendants' alleged misconduct. Do you see that?

A. Yes.

Q. What do you mean by the term "characteristics" in that sentence?

A. Other factors in the individual's life that might matter to health and mortality.

Q. Can you be a little more specific?

A. Diet and exercise.

Q. Anything else?

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A. All --

There's thousands of things that matter to health and mortality. But diet and exercise are the major categories that I or most people think about when they think of some of those others. Propensity to go to the doctor, that would be one.

Q. Now if the tobacco companies had not engaged in this alleged misconduct and had told the truth in 1954 about the health hazards of cigarettes, how many smokers in Minnesota would have quit over the next 50 years?

A. Well I don't have --

I don't know the number, but that would be an object that one would want to study.

Q. And you've not done this calculation; right?

A. That's correct.

Q. Identify any existing data sets that you would use in order to answer that question.

A. Well in addition to our discussion before the lunch break, for this particular question I'd want to look at --

Well you say "existing data sets." I was about to talk about studies, but maybe you don't want that in the answer. So -- but I'll -- I'll add it anyway. I'd want to look at studies of smoking

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cessation in response to various kinds of advertising or informational campaigns, and one of the things I would see in those studies would be the sources of data that they're employing. So I would get two birds with one stone, so to speak, I would see data sets but I would also see studies.

Q. Can you identify one such study?

A. There's one in California. Yeah. I can't think of the name of it, but it -- it's appropriate, and I'm sure I can lay my hands on it for you. Is -- is that what you'd like me to do?

Q. Yeah.

And you'd use this study in California to determine the number of quitters in Minnesota?

MR. BIERSTEKER: Well --

Q. Is that --

MR. BIERSTEKER: Go ahead.

A. I would review that study and see what I could learn about what data sources it was using, see if it would be helpful.

Q. Can you identify any other studies or existing data sets that you would use to answer this question about quitters in Minnesota?

MR. BIERSTEKER: Object to the form.

A. Referring back to before lunch where we were

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talking about --

I'm being, I'm afraid, non-responsive, but I'll keep going and you cut me off if you think it's appropriate. When we were talking about this general question before lunch, we hadn't talked about smoking cessation, but I had talked about what I would do in Minnesota in the way of health records and supplemental information from individuals. Now that we're raising the cessation question, I don't have a specific in mind, but I think you'd want to inquire of people in Minnesota on these questions.

Q. Do you know of any survey or questionnaire that's been done on that point in Minnesota?

A. I can't think of a Minnesota study.

Q. Can you think of a national study on this question of whether smokers would quit had they been told the truth?

A. Or stated alternatively, the effect on smoking cessation of advertising or information, as I would phrase it. There are, I'm --

I know there are other studies than the one that came to mind in California, but I -- I can't think of the title off the top of my head.

Q. And these studies would measure what would have occurred in the absence of defendants' alleged

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misconduct?

A. Well they seem pertinent to that -- to the cessation issue. And if you're asking, as I think you are, where -- if I were doing that project, where I might get started, that would be where I'd get started. Once I got started, I'm not sure how the project would evolve.

Q. And as you sit here today, you can't identify by name any national studies.

A. No.

Q. Now if the tobacco companies had told the truth in 1954 about the health hazards of cigarettes, would the Medicaid rolls have changed in any way over the next 50 years?

(Discussion off the stenographic record.)

A. What did you have in mind in the way of this information in 1954?

Q. Well --

A. Can you tell me -- you don't have to --

I'm not sure exactly what you mean when you said "told the truth."

Q. Here, let me just say this: Suppose in 1954 the tobacco companies had made a complete statement about all the health hazards that they recognized in connection with cigarette smoking. How would the

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Medicaid rolls have changed over the next 50 years?
A. They might not have changed.
Q. I mean do you know the answer to that question?
A. Well I haven't studied it.
Q. Okay. So I mean as you sit here today, you don't know the answer to that question.
A. No. It would require some study and something quite definite in the way of -- of the 1954 event you're describing. You've done fine in the way of bringing some clarity to that, but if you wanted to really study it, you'd want to know more.
Q. Let's assume the same premise, that tobacco companies told the truth about the health hazards of cigarette smoking in 1954. Can you tell me as you sit here today how the government regulation of cigarettes would have changed during the next 40 years?
A. No, I can't.
Q. And you haven't done that calculation; right?
A. No, I haven't made a study of that, that's the reason I can't give you definitive answers. I haven't worked on the problem.
Q. Now have you run the Zeger model, taking into account the changes in the number of characteristics -- strike that.

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Have you run the Zeger model, taking into account any changes in the number or characteristics of the recipient populations that would have occurred in the absence of defendants' alleged misconduct?

A. Well I think the answer to that is no, but let me just take a quick look at some of the things I've done and see if they'd fit in that category.

THE WITNESS: Can I hear that question again, please.

(Record read by the court reporter.)

A. I think I have not. And when we say "number and characteristics," we're referring to the sense in the context of the third bullet point on page three. I haven't done that.

Q. So you don't know what difference it would make in plaintiffs' damages; correct?

A. Oh, I think I have an idea, but I haven't done the calculation.

Q. Now on page four of your report, at the top of the page, you say that Zeger "mixes data from different populations and imputes," and then in parentheses "(or makes up) important data that is missing." See that?

A. I see it.

Q. Now are you saying that obtaining information

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from different data sets to prepare a statistical model is a bad statistical practice?

A. I think it's a troublesome -- it --

It raises troublesome statistical issues, yes.

Q. Are you saying it's a bad practice?

A. Well "bad" is like naughty. It's -- I think in terms of --

It raises difficult and complicated issues that would -- are difficult to resolve and are best avoided.

Q. Well let me ask you this: Is obtaining information from different data sets to prepare a statistical model a practice that is commonly used by statisticians?

A. Well that would require some kind of a survey that I haven't done, but I can tell you of my own experience, at least, since I -- I really haven't done a survey of what everyone's doing. I generally --

I would try to avoid that and I do try to avoid that. It raises a difficult and complicating issue.

Q. And you have never recommended that two different data sets -- or strike that.

You've never recommended that information from two different data sets be used to model a particular

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problem; is that correct?

A. I can't think of an example of that, but I -- if I --

If there were an example of that where I was involved, I would have had to confront the difficulties that that choice presents. But I can't -- I don't remember ever doing that.

(Plaintiffs' Exhibit 4843 was marked for identification.)

BY MR. HAMLIN:

Q. I'm showing you what has been marked as Plaintiffs' Exhibit 4843. This appears to be an article entitled "Estimating Damages in Class Action" -- or "a Class Action Litigation." Do you see that?

A. Yes.

Q. You're one of the authors; correct?

A. Yes.

Q. This was published in the Journal of Business & Economic Statistics; right?

A. Yes.

Q. It was published in April of 1985; correct?

A. Yes.

Q. Is the Journal of Business & Economic Statistics a peer-reviewed journal?

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A. Yes.
Q. Now in this article you are considering estimators for a total class-wide -- strike that.
You're considering estimators for total class-wide damages based on, it appears, some kind of employment discrimination hypothetical; right?
A. No.
Q. No. Okay.
Are you estimating class-wide damages in this article?
A. Not -- I'm -- I'm --
What I'm doing is discussing and developing methodology for doing that.
Q. Now let me direct your attention to page 133. Now if you look on the second column, the third full paragraph --
A. Just a minute.
MR. BIERSTEKER: I'm sorry, Tom, the third full paragraph?
MR. HAMLIN: Third full paragraph.
Q. It begins with the sentence, "To keep the example simple," --
A. I have it.
Q. -- "suppose that the salary illegally withheld by the employer is known." Do you see that?

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A. Yes.
Q. You go on to say, "Suppose that none of the wrongfully discharged employees took alternative employment, so the amount the employees could have earned with reasonable diligence must be estimated." See that?
A. Yes.
Q. Then you say that "This could be done in a variety of ways...." Right?
A. Yes.
Q. Then you say, "To be concrete, suppose that the national average wage (for the same time period) for persons of comparable age and educational background is considered a valid measure of the wage the employees could have earned with reasonable diligence." See that?
A. Yes.
Q. So there you're talking about a national average wage; right?
A. Yes.
Q. You go on to say, "Then the difference between the illegally withheld salary and the national average wage (for comparable persons) is the conditional expected loss X sub i in our model...;" right?

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A. Yes.
Q. Well in fact you've taken the national average wage and you've combined that with the individual wage in your model; right?
A. I think you misunderstand. This is just a hypothetical, illustrative example, it's not anything that I've actually done.
Q. All I'm saying is you've written here that you would take the national average wage -- right?
A. No, I haven't written that.
Q. Oh. You don't say, "To be concrete, suppose that the national average wage...for persons of comparable age and educational background is considered a valid measure of the wage the employees could have earned with reasonable diligence?"
A. Yes.
Q. You have written that; haven't you?
A. I said that.
Q. Yeah.
A. But that's not what you just said.
Q. Then you go on to say, "Then the difference between the illegally withheld salary and the national average salary is the conditional expected loss...."
Now what you're doing there is you are

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subtracting the national average salary -- or strike that -- you're taking the difference between the national average salary and the illegally withheld salary; right?

A. Under an assumption in the hypothetical that that's an okay thing to do. Now I -- it probably is not, and it would be subject to a lot of immediate criticism, but for making a simple example in a hypothetical case, you can't get all that much reality into the situation.

Q. Do you state anywhere in this article that this is not an acceptable practice?

A. I don't need to. I just said assume that one could do this. If you want to assume that --

I certainly don't advocate that this is a generally acceptable way to go about business, and I don't think anybody else would.

Q. All right. But you agree that you are taking the difference between the illegally withheld salary and the national average salary; right?

A. Under the assumption that that would be an adequate and acceptable estimate, yes.

Q. And you're doing that in a model; right?

A. It's a subtraction. I guess, if you call that a model.

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Q. Well don't you say "in our model?"
A. No, that -- that doesn't refer to --
Let me find where it says that.
Q. Do you want me to read the sentence for you?
A. Yeah. I can't find it.
Q. Sure. It says "Then the difference between the illegally withheld salary and the national average salary (for comparable persons) is the conditional expected loss X sub i in our model...." Is that right?
A. Yes, that's --
Q. All right.
A. But that's not --
When it says "in our model," it then goes on to say "bracket (3.1), (3.4)," which is not the -- it's talking about something different than -- different and more general and not the same as the national average. That's a --
Q. No. What you're talking about in this sentence is the conditional expected loss X sub i; right?
A. Yes.
Q. Yeah. And that is in your model; --
A. Yes.
Q. -- right?
And you get that conditional expected loss X sub

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i by taking the difference between the illegally withheld salary and the national average salary.

A. Under the assumption that that would be a reasonable way to estimate. And it depends --

Which it probably would not. It's much too simple.

Q. And again, you don't drop a footnote or indicate anywhere that this is not an acceptable way to proceed.

A. No. There would be no need. Anyone who read this would know I was talking about a simple, illustrative example.

Q. Now you indicate at the top of page 133 that statistical experts would "design a sample survey, specify a specific structural (regression) model, or use yet another methodology to take account of the available data and other specifics of their particular problem." Do you see that at the top of the page?

A. Right or left?

Q. Right-hand column.

A. Yes.

Q. Now do you agree with that statement?

A. Beginning with the word "Rather...?"

Q. The statement I just read.

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A. Well it's -- it's out of context. Let me make sure I understand that we're talking about the same statement. If we mean the statement beginning with -- the sentence beginning with the word "Rather...."

Q. That's the one I read.

A. And do I agree with that?

Q. Yeah.

A. Yeah, I agree with that in -- in -- in the context the word "Rather, they would," and it goes on, means rather than the sentence that precedes it, and I agree with that.

Q. And here you're basically laying out a methodology for determining a model; right?

A. No.

Well you have to clarify that question. There -- there's aspects of what I'm doing that would make a "yes" answer and aspects that would make a "no" answer.

Q. It's a general statement about what statistical experts would do in estimating a model; right?

A. The statement beginning with the word "Rather...," yes. It's a general statement about what different statistical experts might do.

Q. And in specifying a model; right?

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A. Well it doesn't say hardly anything, it just says that different statistical experts might do various things in various problems. Doesn't really say who would do what under what circumstance.

Q. Well let me ask you this: Is NMES a sample survey?

A. Yes.

Q. Is BRFFS a sample survey?

A. Yes.

Q. Does Zeger use regression in his model?

A. He --

At some places, yes.

Q. All right. And I take it that you agree that regression is a commonly accepted and used statistical practice in modeling; right?

A. Commonly used, commonly misused.

Q. Do you agree that statisticians commonly use regression in specifying a model?

A. No.

Q. When they do --

A. But they --

But I'm quibbling about the technical interpretation of your -- your question. They -- they commonly --

Regression is commonly used. I agree with

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that. It's not always used correctly, but it is one of the things that is commonly done by statisticians.

Q. In preparing a model; right?

A. Well that's where I'm not sure I understand your question.

Q. When statisticians want to do modeling, one of the commonly used techniques is regression; right?

A. Well you'll have to be a little more clear. They use sometimes statistical regression and then might refer to that regression as a model, as just a different word for what they're doing.

Q. And Zeger in his model uses other methodologies besides regression; right?

A. Yes. He does a great many different things.

Q. He uses a probe it model; right?

A. Yes.

Q. Have you ever used a probe it model in determining or preparing a statistical model?

A. Yes.

Q. Have you ever used regression?

A. And I think we're -- we're having trouble with this word "model." Can I try to tell you how I would use the term? Otherwise, I'm going to be quibbling with all your questions, I'm afraid.

Q. Well let me ask you this --

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MR. BIERSTEKER: I guess I should have objected to form.

MR. HAMLIN: Yeah. These are hard terms.

Q. Have you yourself used regression in preparing any kind of modeling?

MR. BIERSTEKER: Now I will object to form.

A. I have --

I have myself used regression.

Q. Have you ever done a model?

A. Well this is our confusion. I've done regression, and one can refer to that as a regression equation or a regression model, but it's not something different. It's not done regression for something else and that something else is the model. Regression is the model.

Q. Okay. So you've used regression --

A. Yes.

Q. -- in modeling.

A. If you like. It's not the way I would phrase it, but just to move things along I'll say okay, in your language.

Q. So do you agree that Zeger basically did what you recommended in this sentence --

MR. BIERSTEKER: Object -- object to the form of the question.

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Q. -- on page 133?
A. But which sentence of page 133?
Q. The one that we've been talking about.
A. The one beginning with "Rather...?"
Q. Yeah.
A. That sentence is so general, all it says is that different people in different circumstances might do a variety of different things.
Q. Uh-huh.
A. And he's done a variety of things in -- in a variety of circumstances, so that in that sense there's an agreement.
Q. Yeah.
A. But it's not an endorsement, and it shouldn't be misconstrued in that way.
Q. Well Zeger certainly used sample surveys; right?
A. My sentence says "would design a sample survey," but --

And he didn't do that. But he did use somebody else's surveys.

Q. And he did specify a specific structural model, in fact several; right?
A. If we're referring to his regression models, for example, yes, he did that.
Q. And he also used other methodology to take into

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account the available data and other specifics of his particular problem; right?

A. He used other methodologies.

Q. Yeah. And I think we talked about one being the probe it; right?

A. That's one.

Q. Now let me direct your attention to page four. Again --

A. This is --

MR. BIERSTEKER: Of the report?

MR. HAMLIN: Yes, page four of the report.

Q. And again you say that Zeger imputes or makes up important data. Now you're not saying that imputing -- imputing data is a bad statistical practice; are you?

A. I hope I wouldn't use the phrase "bad statistical practice" because that doesn't seem like good use of the word "bad." But it's troublesome practice and it's an error-prone activity, and it's best avoided.

Q. Are you saying that it is a practice that is unacceptable?

A. No.

Q. Okay.

A. I think that would -- to be --

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It might be unacceptable. It depends on how it's done and the circumstances. But I wouldn't say it would be always unacceptable.

Q. Similarly, would you agree that mixing data from different populations is not always unacceptable?

A. I would probably agree to any sentence that ends with the words "is not always," because there's too many --

The world is too vast and complicated to give very many statements that have the word "always" in them.

Q. Okay. Now that you've, you know, made your statement, can you answer my question?

A. I thought I was going to save you a whole lot of questions.

Q. Yeah.

A. I thought I did. Let's try it again.

Q. Okay. Let's see if we can get a specific answer to the question.

A. Okay. Go ahead.

Q. Would you agree that mixing data from different populations is not always an acceptable -- or an unacceptable practice?

MR. BIERSTEKER: Objection, asked and answered.

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A. I would agree with that. Although in every situation that I can think of offhand, it is troublesome and presents difficulties and is, in my view, best avoided, if possible, because of the difficulties.

Q. Now you yourself have imputed data in some of the work that you've done; right?

A. Probably over the --

I've done a lot of work in a lot of years. But I can't think of an example offhand. I usually don't.

Q. You usually don't?

A. Yeah. It usually doesn't come up. But it --

If you have something in mind --

Q. I'm asking you if you remember.

A. I don't remember a specific instance, no.

(Plaintiffs' Exhibit 4844 was marked for identification.)

BY MR. HAMLIN:

Q. Let me show you what has been marked as Plaintiffs' Exhibit 4844. This is an article entitled "Controlling emissions from motor vehicles." Do you see that?

A. Yes.

Q. And you are one of the authors?

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A. Yes.
Q. And this was published in Environmental Science Technology?
A. "and Technology," right. It's a publication of The Chemical Society.
Q. This was published in 1990; is that right?
A. Right.
Q. Is this a peer-reviewed journal?
A. Yes.
Q. Now on page 1128, which is the first page of the article, you write that, "This article reports the results" --
A. Can I --
Let me find it.
Q. Yeah. It's in the first column.
A. Got it.
Q. You write that, "This article reports the results of a benefit-cost analysis of alternative strategies for controlling emissions from hydrocarbon refueling and evaporative emissions from cars and LDTs." See that?
A. Yes.
Q. What's an LDT?
A. Light-duty truck.
Q. Now let me direct your attention to page 1131 of

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the article. On page 1131 you have a chart; correct?
A. Yes.
Q. Can you tell me generally what this chart describes?
A. Might take me a minute.
Looks like it's a continuation of the chart on the previous page.
Q. And that's --
That chart is entitled "TABLE 2, Populations and seasonal peak ozone concentrations in nonattainment MSAs?"
A. Yes.
Q. Now what does MSA stand for?
A. Metropolitan Statistical Area.
Q. Now you list MSAs in the left-hand column; right?
A. Yes.
Q. Then in the -- the next column you have "Population," and you list a count by -- it looks like thousands; is that right?
A. Yes.
Q. Let me take you to the next page, which is page 1131, and that's the second page of Table 2. See that?
A. Yes.

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Q. Now down at the bottom of the page there are footnotes. The first footnote is a, and that refers to "Metropolitan statistical areas;" right?

A. Yes.

Q. Then if you look at footnote b, it states, "MSAs whose populations were not listed in the Statistical Abstract were assumed to have a population of 200,000." Right?

A. Yes.

Q. For example, if you look at the entry for Lake Charles, Louisiana, you see the number 200; right?

A. I've lost you. I don't see it.

Q. Okay. It's in the second page of Table 2, Lake Charles, Louisiana.

A. I see it.

Q. See that?

A. Yeah.

Q. Next to Lake Charles, Louisiana under "Population" is the number 200; right?

A. I see it.

Q. Okay. Basically what that means is that the population of Lake Charles, Louisiana is assumed to be 200,000.

A. Yes, for the purpose of this calculation.

Q. All right.

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A. Right. I don't necessarily believe it's true, but it's for -- for this calculation.

Q. That's right.

And aren't you there imputing data?

A. No. This is a little different.

Q. Hmm. Well you don't know the population of Lake Charles; is that right?

A. That's right.

Q. Okay.

A. For the purpose --

And for the purpose of the calculation, I'm plainly stating that I'm going to assume it's some round number and proceed with the calculation.

Q. So you didn't have -- strike that.

You had missing information; right? About the population of Lake Charles, Louisiana; correct?

A. I probably --

It's probably not missing. It's probably a number that is quite available. But since I knew in this calculation it would have almost no effect, it wasn't worth my time to -- to get it.

Q. In this calculation you didn't have the actual population of Lake Charles, Louisiana; right?

A. That's right.

Q. And what you did is you filled in a number, and

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that number was 200,000; right?
A. Right.
Q. Now by filling in and making up this data, does this make your calculation unreliable?
A. Not in this case. I've been quite clear with what I've done there, and if one were concerned, if you as a reader came along behind and said I wonder if that -- if the possible error in that number really could affect this calculation, then you have the ability to double check my own conclusion that it doesn't make any difference.
Q. So what you're saying in answer to my question is that this isn't a bad calculation because you assumed that Lake Charles, Louisiana's population was 200,000; right?
A. No. Because that assumption doesn't have any important effect.
Q. You made that assumption for a number of these cities; right?
A. Yes.
Q. And for each city, you assumed the population of 200,000.
A. Yes.
Q. Now you didn't use multiple imputation here --
A. No.

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Q. -- in this study; right?
A. No.
Q. And you didn't use propensity scoring; right?
A. No. I used an assumption.
Q. Now I believe you've already testified that the studies that you published in peer-reviewed journals did not include either multiple imputation or propensity scoring; right?
A. Right.
Q. Now you'd agree that your studies are still valid studies even though they didn't use those techniques; right?
A. What studies?
Q. The ones you've published in peer-reviewed journals.
A. There's no relationship. They didn't call for that.
Q. Okay. Well is it your testimony that studies that do not use multiple imputation and propensity scoring are fatally flawed?
A. No, I didn't say that.
Q. I mean that's not -- that's not your opinion; right?
A. No, not at all.
Q. All right.

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A. They might be, but they don't have to be because of that.

Q. Let me just show you Exhibit 3107, which is a copy of the Zeger report.

MR. BIERSTEKER: Here's your own copy.

THE WITNESS: Why is this so big?

MR. BIERSTEKER: Huh?

THE WITNESS: Why is this so big?

(Discussion off the stenographic record.)

BY MR. HAMLIN:

Q. Let me direct your attention to chart four in the Zeger report, which --

A. Page? It's in the back?

Q. In the back. It's about six pages from the end.

A. Got it.

Q. Now the title of this chart is "Expenditures by Type, 1987, Comparison of Plaintiff Expenditures with National Average from NMES." See that?

A. Yes.

Q. Do you see that there are various services along the X axis for the graph on the top?

A. Yes.

Q. And those services are prescription meds, ambulatory, home health, in-patient hospital and other; right?

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A. Yes.
Q. Along the Y axis is a measure for the percent of expenditure. See that?
A. Yes.
Q. Then this chart at the top compares Blue Cross Blue Shield Minnesota expenditures by type to the national averages from NMES; right?
A. Yes, it appears to.
Q. And if you look at the graph on the bottom, the same comparison is made for Minnesota Medicaid and U.S. Medicaid as indicated in NMES; right?
A. Yes.
Q. Do you have any basis for disputing the findings in this chart?
A. I actually haven't replicated this chart, so I can't give you a very specific response.
Q. Well since you haven't replicated it, then --
A. But I know something about --
Q. -- you have no basis for --
A. I know a little bit --
Q. -- disputing it.
A. I know a little bit and can dispute a little bit.
I'm thinking about whether some of these Medicaid individuals that have been looked at here

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are possibly imputed, but I don't know that because I haven't really dug into this. But when I go home I'll do that. I'll -- so that --

I know we're going to do this again, and if you want to ask, I'll maybe have had a chance to --

Q. As you sit here --

A. -- look.

Q. -- today, you've not done an analysis of this chart; right?

A. No, I have not.

Q. And so you have no basis, based on any analysis, to dispute this; is that right?

A. Well I haven't done any specific analysis of this chart, that's true.

Q. And thus you have no basis for disputing the chart; right?

A. I have my concern that I've mentioned that I'd want to check on, but basically I have no disciplined basis because I haven't replicated these numbers one way or the other.

Q. Now would you agree that once statisticians establish similarities between different populations, they often mix the data from those populations?

A. Gee, I hope not.

Q. This is not a standard practice?

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A. Well it's --

It sounds error-prone to me.

Q. And you've never seen this done, ever.

A. No, we'd have to get into some specifics. I think it is possible to consider more than one source of data, but not in the way that you've identified.

Q. Well wouldn't the first thing that you would have to do is establish some similarities between the two data sets?

A. Basically what you have to do is understand the relationship between the two data sets.

Q. I mean you have to understand the relationship between the two data sets; correct?

A. Yes. And that's difficult.

Q. But if you understand the relationship, it is then possible to mix those data sets.

A. Might be. Depends on the application, what your understanding is.

Q. Well, for example, if expenditures for health care in a national data set are similar to expenditures for health care in a regional or state data set by type, you can then establish a relationship; right?

A. No. You -- you mean --

I assume you mean as per chart four? No.

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Q. Okay. Based on chart four, you don't see any relationship between the NMES Medicaid data and the Minnesota Medicaid data; is that right?

A. I see what chart four depicts, but I don't see what one would need to truly understand the relationship between those two data sets.

Q. So chart four doesn't assist you at all in understanding the relationship between NMES and Minnesota Medicaid data.

A. No. It barely scratches the surface.

Q. Okay. Now I think you did a comparison of Minnesota Medicaid data and NMES Medicaid; is that right, in your expert report?

A. I'm going to look.

If you've got a spot in mind, you could speed us up here. Otherwise, I'll go searching.

Q. Why don't you try page five. First full paragraph, the sentence that says, "I accordingly analyzed differences in health care expenditures and health care utilization of smokers and never smokers, limiting the analysis to individuals eligible for Medicaid or public aid."

A. Yes. And then the bullet points follow.

Q. Right.

So let me ask you: Did you compare the NMES

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Medicaid population to the Minnesota Medicaid population?

MR. BIERSTEKER: I'll object to the form of the question.

A. All of these comparisons appear to be between different kinds of smoking status within the same data set, not what you're asking about.

Q. Can I -- can I ask you this question?

A. Sure.

Q. And maybe you could, you know, watch me and not -- not review the report while I'm asking the question. All right? Just --

Just so we're clear about this, did you in your analysis compare the NMES Medicaid population to the Minnesota Medicaid population?

A. Well I didn't --

I haven't spotted that. I thought you --

Q. Do you have a recollection of that?

A. No, but you -- that's because I've got a ton of materials here, and I wouldn't trust that that comparison would immediately pop to mind. But the --

I thought you were directing me to a place that you expected to see that. But I don't see that.

Q. So that's not what you did on page five.

A. No. Those appear to be comparisons of different

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kinds of smoking status within the same database.

Q. And that database is NMES?

A. Sometimes it's NMES and sometimes it's not.

Q. Well when it's not, what database is it?

A. When it's not, it's Minnesota BRFFS.

Q. Those are the only two databases you're talking about there?

A. Yes.

A. Well on -- on page five. There's other databases on other pages.

Q. All right. Let me direct your attention to page five, and specifically to the first full paragraph. Now you say that "Zeger implicitly assumes there are no material differences between the populations for which he has estimated smoking attributable expenditures and the data upon which he relies;" right?

A. Yes.

Q. Now is it your understanding that Zeger combines populations covered by Medicaid or public aid and those that are not?

A. Yes, sometimes.

Q. All right. Where?

A. Refined disease model would be one.

Q. Now did Zeger do any test to see whether there

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were any differences in those populations?
A. Between Medicaid and not Medicaid --
Q. Yes.
A. -- you mean?
Well I don't recall him describing those tests. It's possible that --
I just don't recall it.
Q. Well in fact Zeger combined populations covered by Medicaid or public aid and those that are not in the model of smoking and lung cancer and COPD. Do you recall that?
A. Yes.
Q. Now are you also aware that the Surgeon General has concluded smoking is a major cause of lung cancer, regardless of public aid status?
A. I don't recall that sentence, but I think I know what you're talking about, yes.
Q. So you recall that.
A. I don't recall the sentence you just said.
Q. Do you recall that the Surgeon General has concluded that smoking is a major cause of lung cancer?
A. That's the judgment of the 1989 report. I believe you could find it there.
Q. Have you read the 1989 report?

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A. Yes.
Q. Did the Surgeon General make any distinctions for those people on public aid and those not on public aid?
A. I don't think so. I don't think he addressed that.
Q. Now you did your own analysis of the NMES data; right?
A. Well I've done some.
Q. Yeah. I mean you looked at average expenditures for certain groups; right?
A. For example, on the bullet points on page five, if we're on the same track here, yes.
Q. Is that an analysis of NMES data, the bullet points on page five?
A. If you --
I guess one could call it an analysis, but it's -- I would call it a calculation of average expenditures.
Q. Now in doing your analysis of NMES data, did you find that average expenditures for all ever smokers were higher than those for all never smokers?
A. By "all," you mean public aid and others.
Q. All.
A. Well I don't see that calculation here, so --

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Q. I'm asking you if you recall doing it and if you recall the result.

A. I don't recall. It's possible it's in my materials, but I don't recall doing that.

Q. Now in your analysis of the NMES data you also controlled for age and sex; right?

A. I think so, but we'd have to get out the computer output to verify that.

Q. Would you agree that most adults on Medicaid are women?

A. I believe that's right.

Q. Now you did an analysis of women 35 to 64 who were on public aid in NMES. Do you recall that?

A. That's one of the categories, but we'd have to be more specific for me to actually recall the work. You want me to try to find that output?

Q. Well let me just tell you that in your own analysis you found that the average expenditures for ever smokers were greater than never smokers for women 35 to 64 on public aid.

A. Okay.

Q. Now assuming that your analysis is correct, you've looked at the majority of Medicaid recipients who are most likely to have smoking-attributable diseases and concluded that ever smokers pay more.

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MR. BIERSTEKER: Object to the form of the question.

Q. Right? I'm just asking: Assuming that your -- your analysis is correct.

A. Well I -- I'm not going to be any good at responding without getting out the analysis, because you seem to have a fine recall of that computer output and I do not.

Why don't I get my hands on the output. About time for a break anyway. I could hunt it up during the break. Then I could be more responsive.

MR. HAMLIN: Okay. Let's take a break.

(Recess taken.)

BY MR. HAMLIN:

Q. You've had an opportunity to review some of the computer printouts that you created in connection with this case; is that correct?

A. Yes.

Q. What exhibit notebook are you looking at?

A. It's the one I called WEW.

Q. Plaintiffs' Exhibit 4832; is that right?

A. I trust you. I mean you're reading it. I'm assuming it.

Q. Have you found your analysis of NMES data?

A. Yes.

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Q. And are you able to determine the expenditures for women 35 to 64 who were on public aid?
A. Yes.
Q. Okay. So you have circled females 35 to 64, and under "PUB" is the number one, indicating that they are on public aid; right?
A. Right.
Q. Where does it say there ever smokers?
A. Right down here.
Q. Okay. So for females 35 to 64 years old who were on public aid, the average expenditures for ever smokers is 3,512 --
A. Point 54.
Q. -- point 54; right? Is that correct?
A. Yes.
Q. And for females 35 to 64 years old on public aid who are never smokers, the average expenditure is 3,322.67; right?
A. Correct.
Q. Which is less than the ever smokers; right?
A. For that category.
Q. Yes. Is that correct?
A. For that category it's correct.
Q. All right. So you've looked at, then, the majority of Medicaid recipients who are most likely

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to have a smoking-attributable disease and concluded that ever smokers pay more.

A. No.

MR. BIERSTEKER: Object to form.

A. No, no. You slipped in a thing that I -- that I haven't agreed to. But you have found one category of -- that goes that particular way. And the others go the other way, and the aggregate goes the other way.

Q. Well in fact the average expenditures for all ever smokers is higher than for all never smokers.

A. You're talking about public aid?

Q. I'm talking about all on NMES.

A. Particular age group?

Q. All.

A. All.

Yes.

Q. All right. If you look at females 65 and over on public aid, --

A. Yes.

Q. -- average expenditures for ever smokers is greater than never smokers; right?

A. It's --

It's virtually identical.

Q. What --

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What is the expenditure for ever smokers?

A. 5,818.

Q. All right. And what is the expenditure for never smokers?

A. 5,811.

Q. Now I want to direct your attention to the category of males 19 to 34 who are on public aid. Can you find that?

A. Okay.

Q. So you've found the category of males 19 to 34 who were on public aid?

A. Yes.

Q. The average expenditures for ever smokers is greater; right?

A. Yes.

Q. Specifically it's greater than for never smokers; right?

A. Right.

Q. Can you look at the average hospital expenditures for this group.

A. For the -- for the same --

Yeah. Okay, I -- I think I understand what you mean. I'm -- I'm looking.

Q. What is the average hospital expenditure for male ever smokers 19 to 34 on public aid?

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A. 2,095.
Q. What is the average hospital expenditure for males 19 to 34 on public aid who are never smokers?
A. 442.
Q. A large disparity there; right?
A. There's that difference for that category.
Q. Let's talk about persons who have private insurance on NMES -- or strike that -- who are in NMES.

According to your chart, females 35 to 64 who are ever smokers have average expenditures that are higher than never smokers; right?

MR. BIERSTEKER: I'll object to the form of the question.

A. I didn't understand.
Q. All right. Let me back up.

I want to direct you now to persons who are on private insurance in NMES who are not on public aid.

A. Not on public aid. Okay. Got it.

MR. BIERSTEKER: Oh.

Q. Okay? We'll just call these people people who are not on public aid.
A. Okay.

MR. BIERSTEKER: That's better, actually. Thank you.

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Q. If you look at females 35 to 64, --
A. Yes.
Q. -- you see that the average expenditures for ever smokers are higher than those for never smokers; correct?
A. Yes, for that category.
Q. Now would you expect to see more smoking-attributable disease in females 35 to 64 than in females 19 to 34?
A. I'd expect to see more disease of all kinds.
Q. I'm asking you specifically about smoking-attributable disease.
A. Well that's complicated.
Q. If you can't answer it, you can't answer it.
A. Well I'm not sure you really mean --
Q. I know what I mean.
A. You do.
Q. And if you just listen to the question --
You know, if you don't understand it, you can tell me you don't understand it. But don't tell me what I mean? Okay? I'd appreciate that.
A. Okay.
That would be complicated and hard to answer and couldn't be done from these materials.
Q. I'm not asking you to do it from these

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materials, I'm just asking what you would expect.
A. Well that would require a calculation that I --
I can't tell you for sure.
Q. Now let's look at males who are not on public aid.
A. But you could have meant smoking-related diseases and just misspoke, and that's why I wanted to bring it up.
Q. So that you draaw a distinction between smoking-attributable and smoking-related disease?
A. Yes. But I don't want to tell you what you had in mind, so we'll go on from that.
Q. So if I rephrase the question by asking you if you'd expect to see more smoking-attributable -- strike that -- more smoking-related disease in females 35 to 64 than in females 19 to 34, what would your answer be?
A. That would be a different question and that would be easier, and I would say where I understand that term in the context of the Surgeon General's list of so-called tobacco-related diseases, I'd expect yes.
Q. That's what I meant.
A. Well that's what I was trying to tell you, --
MR. BIERSTEKER: And we knew --

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A. -- that that's what you meant.

MR. BIERSTEKER: We knew that that's what you meant all along, whether you did or not, Tom.

(Laughter.)

MR. BIERSTEKER: You know, I got to say -- This is off the record.

(Discussion off the record.)

BY MR. HAMLIN:

Q. Let me direct your attention to males 35 to 64 who are not on public aid in the NMES data set.

A. Just a minute.

Q. Okay.

A. Okay. Oops, not yet.

Okay.

Q. In that group, the average expenditures for ever smokers is higher than for never smokers; correct?

A. Yes.

Q. Now in your analysis you control for age and sex; right?

A. If you could say "control." But I'm doing separate calculations by age and sex.

Q. Did you do separate calculations for any other stratifications or --

A. By insurance types --

Q. -- groups?

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A. By insurance types and by smoking status.
Q. Okay. Did you control for any other factors?
A. No. There's no other categories.
Q. Did you do any tests for statistical significance in this analysis?
A. No.
Q. Now Zeger also controlled for age and sex in his model; right?
A. Well he's got a lot of models and does a lot of things, so --
In some places, yes.
Q. And in some places he controls for more than age and sex; correct?
A. Well can you tell me which of his many models you are going to be talking about?
Q. Well I'm just asking you if you recall.
A. Well he --
I recall that he does a lot of different things in different places. If we want to talk about something that he's done specifically, I wanted to get it out in front of me.
Q. Okay. So as you sit here today, you can't recall --
A. Yes, I can.
Q. Okay.

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A. He does a lot of different things in a lot of different places. I recall that.
Q. And do you recall places where he controls for factors other than age and sex?
A. I am aware of other places where he uses other variables that may or may not in fact control, but at least are being used.
Q. And what are those other variables?
A. Age, education, income, weight, w-e-i-g-h-t, seatbelt use, insurance.
Q. Any others?
A. That's all I'm seeing at the moment.
Q. Now let me direct your attention to page five of your expert report. You have three bullet points at the bottom of the page. The first one states that "Average medical expenditures for current and former smokers are lower than those for never smokers within the NMES Medicaid/public aid population." Do you see that?
A. Yes.
Q. Now for this particular statement, did you control for age and sex?
A. No. This is an aggregate calculation.
Q. The next bullet point states, "Average health care utilization for current and former smokers are

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lower than those for never smokers within the NMES Medicaid/public aid population." Again, did you control for age and sex?

A. For that particular statement?

Q. For that particular statement.

A. That is an aggregate -- aggregate result.

Q. And then your final statement is that "Average health care utilization (hospitalizations and doctor visits) for current and former smokers are lower than those for never smokers within the Minnesota BRFFS Medicaid/public aid population." Again, are those aggregate numbers?

A. Yes.

Q. So you didn't control for age and sex.

A. I'm not sure what you would mean by "control for" in this context, but at least these results that are expressed on this particular page are aggregate numbers. I've also done the results by different categories.

Q. Okay.

A. But they aren't mentioned on this page.

Q. And in fact we've gone over some of those categories; right?

A. Yes.

Q. Now let me ask you this: You've looked at the

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Minnesota BRFFS information; right?

A. Yes.

Q. How many people had tobacco-attributable diseases in BRFFS -- ah, tobacco-related diseases?

A. I can't tell you that off the top of my head. I'd probably have to run a computer to get that.

Q. Do you know if there was any indication of people with smoking-related diseases on BRFFS?

A. Just a minute.

You know, that might not be recorded in BRFFS. So do you mean BRFFS?

Q. That's what I mean. I'm asking you if you have a recollection as to whether smoking-related disease is recorded in BRFFS.

A. Well I thought by the way you asked the question that we were talking about the databases where that's in there, but I don't think that --

I don't think you can find that in that particular database. Yes, I'm quite sure of that.

Q. Now there is disease information in the Minnesota Medicaid claims database; right?

A. That's my understanding, yes.

Q. And that's where Zeger draws his disease information from; right?

A. Well he gets some disease-related information

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from there, but he gets it from other places too.
Q. Where else does he get it?
A. From NMES.
Q. Any other sources?
A. Well I'll have to look through all his models to be confident --
Q. No. I'm just asking if you recall.
A. Off the top of my head, those are places I think.
Q. Okay. Yeah.
A. But if we really want to be careful, I'd have to go through each of his models and check.
Q. Let me direct your attention to page six of your report. You make reference there to the MCBS. Do you see that?
A. Yes.
Q. Can you tell me again what that is?
A. Medicaid Current Beneficiary Survey. Access to care --
There's two pieces: access to care, and cost in units.
Q. And does that information --
Or does that database include or contain nursing home information?
A. Yes, that's got nursing home information.

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Q. Is that a national database?
A. I think so, yes.
Q. Do you know whether there is any Minnesota data included?
A. I'd have to check on that. I'm not sure.
Q. Did you test for any similarities between Minnesota nursing home data and the nursing home data on MCBS?
A. I don't believe so. But it's interesting. I'll look into it.
Q. But as you sit here today, you haven't done that.
A. Not --
I don't believe so, no.
Q. Now does this MCBS database include information about smokers? Strike that.
Does it include smoking information?
A. Yeah. I think so, yes.
Q. Can you tell me how that information is described?
A. Well I'd have to get a coding manual to do that.
Q. Is smoking history set out, or are people asked whether they're a smoker or not?
A. I'm going -- go ahead.
MR. BIERSTEKER: Let me object to form. If

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you want to know why, I can tell you.

MR. HAMLIN: Sure.

MR. BIERSTEKER: There seems to me a difference between kind of collecting information at one point in time that maybe captures historical information -- for instance: Are you a current smoker today? Are you a former smoker? -- which is in some ways historical, and Are you a never smoker? in a question. Or if the question is ever/never, I think if you ask the question that way, it might be more precise. But I think that's what you're driving at. I think you're asking the same thing, I just don't know.

THE WITNESS: I'm not sure I follow either one of you.

(Laughter.)

Q. Do you know what question or questions are asked about smoking history?

A. I'd have to --

I'm a little fuzzy on that point. I'll have to double check. But my fuzzy recollection is that this may be the database where they get the information from.

No, I -- I just have forgotten. I'll have to check on that. I'm just weak on that fact.

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Q. Does this database contain costs?
A. I'm going to check my computer output where I think I might be able to answer these questions.
Q. First of all, --
A. Yes, apparently.
Q. -- can you tell me what exhibit you're referring to?
A. My --
Q. It's marked on the back of the notebook.
A. 4832.
Q. What is that notebook?
A. It's a thick notebook full of computer output.
Q. No, I know that, but there's a title on it.
A. Okay. It says "Minnesota, WEW, 970721 Output."
Q. The question is: What questions are asked about smoking?
A. Okay. In looking at the output, I can get more specifics here, and I -- I see a question "Ever smoked cigarettes/cigars?" which is probably just a transcription from the coding manual here, so that's probably the way the coding manual describes it.
Then you also asked about whether costs are in there, and I see they are. There are costs in there.
Q. Now are the costs health-care costs?
A. Well I'm not sure how to --

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Nursing home costs, I guess, could be called health-care costs, but they're not necessarily for a particular treatment.

Q. Well that's what I'm asking: Are the costs for a particular treatment, or are they simply for maintenance in a nursing home?

A. You'll get to the limit of my understanding of that pretty quick, but I think it's of the maintenance kind. Exactly what happens in a nursing home, I'm not that detailed, but -- I'm not knowledgeable about all those details. I'm sorry. I didn't --

If I come back to see you, I'll try to bring that coding manual, and then I'll have a place to look at it.

Q. Now do you have in that notebook the MCBS data that you are relying on?

A. Not the data itself, no.

Q. What's in the notebook?

A. A variety of computer --

Q. But with respect to MCBS.

A. Just two pages with results that support the bullet point at the top of page six.

Q. Now you say that "Taking these factors into account, smokers cost Medicaid less for nursing homes

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than never smokers." Do you see that?
A. Yes.
Q. Did you do a longitudinal calculation in order to come up with that result?
A. I think it would be fair to call this longitudinal. It's over a period of time, so it has a time-duration element in it.
Q. How long a period of time did this cover?
A. That's where I need the coding manual to get -- to get that. Let me see if I have something else here that will help.

I'm not sure. I'd have to check that. I just don't have that here.

Q. In doing your calculation, you didn't use the annual approach that Zeger used; right?
A. I certainly --

I didn't use his -- his approach, which was -- I wouldn't call it an annual approach, but his age-stratified approach I did not use.

Q. Well why don't --

Why don't you tell me generally what your approach was in calculating these nursing home costs and determining that smokers cost Medicaid less.
A. This is just a straight average for smokers and for never smokers for -- and an average of the costs

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in this particular database, both total payments and amounts paid by Medicaid. Now just looking at the size of the numbers that are on the averages here, they look like one-year figures.

MR. BIERSTEKER: And that's with respect to the cost information; right?

THE WITNESS: Cost information.

A. But the coding manual would resolve that, and I don't have it with me.

Q. So did you look at the average cost for each year and then add them up?

A. It may -- I -- I wish I had that manual with me, but it --

With some interpretation of the output here, it looks to me like the costs may just be for one year, whereas the database is over a period of more than one year. But I've --

Q. So are you saying you just looked at one year's cost?

A. Let me finish. What I'm saying is I've forgotten the exact structure of that database, and I don't have the materials with me that would refresh me on that. But it looks like these are one-year costs because they're the right size for one year.

Q. And you did not stratify by age; right?

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A. That's correct.
Q. You just looked at the average cost for smokers and compared them to the average cost for never smokers; right?
A. Right.
Q. Now you go on to say that you found similar results for the E-P-E-S-E data set.
A. I'm dredging up some more memory on in MCBS data set. I think this --

My confusion is that there's actually two of them, and one is more one-year and another -- it comes in two pieces. One is more one-year and one is for more than one year, and the cost data I believe come from the part that has only one year, and the other part of the sentence comes from the other part that is over a period of more than one year, the other part of the bullet point. So I -- that may --

That helps me clear up some of the confusion I had about exactly how that data set works.
Q. You next reference this E-P-E-S-E data set.
A. "EPESE" is what I've come to call it.
Q. Now is that a national data set?
A. I think so.
Q. Did you do any tests or comparisons to determine the similarity between the national data set and

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Minnesota -- the Minnesota nursing home population?
A. No.
Q. What was the question asked in order to determine or capture smoking information in the EPESE data set?
A. The variables that I have here are for ever smokers and never smokers. Exactly how the question was put, I'd have to get the coding manual, which I don't have with me.
Q. And there were also costs in this data set; is that right?
A. I haven't found them yet. But just a moment, I'll keep looking.
I think I'm just seeing rates from this data set. I don't see costs in the output.
Q. Now in order to come up with your results, did you take a straight average of some number for ever smokers and never smokers?
A. And look at entry rates? How did I calculate entry rates? is the question?
Q. Well you say that "Similar results were found for smokers generally using the EPESE data set."
A. Right.
Q. And I guess the first question is: What do you mean by "similar results?"

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A. Lower entry rates.

Q. Were you able to do any cost analysis using the EPESE data set?

A. Apparently not. I've just looked through the variables that I have in my output and I don't see any cost, I just see entry-type information.

Q. So you looked at the rates of entry for smokers and non-smokers in the EPESE data set; right?

A. Right.

Q. Did you stratify by age?

A. No.

Q. How many years did you look at?

A. Well I've got the calculation here for --

It says first follow-up, so I'd have to go look to see when -- what the time lag is in the follow-up set.

The data set is for '81 through '87, but I don't have recorded here the date of the first follow-up. But looks like you get the same answer if you looked at the first follow-up or the second follow-up or the third follow-up, so I guess it doesn't matter.

Q. Now have you produced the information on backup for your conclusions about the EPESE data set?

A. Yes.

Q. And is that in the notebook that you're

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currently looking at?

A. Yes.

Q. Can you for the record identify the exhibit number which is on the back of that notebook?

A. 4832.

Q. Now let me direct your attention to your expert report, and specifically page six where you say that "Zeger's models are able to explain very little (e.g., less than ten percent) of the variation in medical costs among the National Medical Cost Survey subjects on which his model is based." Do you see that?

A. Yes.

Q. Now that refers to R-squared values; is that right?

A. Yes, I -- I think so. I think you'll need to find it to be a hundred percent sure, but --

Q. Did you calculate an R-squared value?

A. Yes.

Q. Okay. What was it?

A. Let me find it.

Q. First of all, what notebook are you referring to?

A. Okay. This is 4837. It's the one on refined disease model.

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Q. Okay.
A. And there are regressions in there and I have -- when I say "(e.g. less than ten percent)," it's actually an example of 5.19 percent.
Q. This is your calculation of R-squared?
A. It's a replication of his analysis -- of his -- see, it's his --
Unless I've done something wrong, it's his calculation. It's just that I -- I've printed it out here.
Q. And you came up with 5.1 percent?
A. Yes.
Q. All right. Now was this the R-squared for the regression output?
A. Yes.
Q. Was it the R-squared for the probe it output?
A. No.
Q. Did you do an R-squared for the probe it output?
A. Well I don't do them. It's either in his software --
If it's printed out, it's printed out. But I'll have to go looking. Often in probe its, it's not printed out because it's not really a concept that's ordinarily used there.
Do you want me --

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Q. That's all right. You don't need to look for it.

A. Okay.

Q. Now you say on page six of your report that the "results could be different if more explanatory information were known and taken into account." See that?

A. Yes.

Q. Now did you run the Zeger model with additional variables which Zeger did not include?

A. No.

Q. Okay. So as you sit here today, you don't know whether that would give you a higher R-squared; right?

A. Oh, that I know.

Q. But you haven't calculated it.

A. Oh, but I know that. There's a mathematical theorem that helps me there.

Q. What would the higher R-squared be?

A. I don't know. Just higher.

Q. Just higher.

A. Yes. I know that.

Q. It would be more than 10 percent?

A. That's right.

Q. It would be more than 20 percent?

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A. I don't know how high. I just know it would increase.
Q. Well let me ask you this: If you ran the Zeger model with additional variables which Zeger did not include, how would that change the plaintiffs' damages?
A. Well it would change the coefficients, and the coefficients are important to the calculation.
Q. Do you know what the change would be in the plaintiffs' damages?
A. I know what I'd expect, but I don't know because I haven't actually done it.
Q. Now you say that "Zeger's regression models omit key known health-related variables, such as personal and family medical history...." See that?
A. I haven't found it yet, but I remember writing it.
Q. It's under "Omitted information" on page six.
A. Got it.
Q. Now did NMES contain personal and family medical history?
A. I don't think so.
Q. Did BRFFS?
A. Not that I recall.
Q. Did the Medicaid claims data contain personal

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and family medical history?
A. The billing data you mean? I don't think so.
Q. Did the billing or claims data for Blue Cross Blue Shield Minnesota contain the personal and family medical history information?
A. I don't think so.
Q. So Zeger didn't have this information in any of those data sets; right?
A. Yeah. That's the problem.
Q. I'm --
You agree he did not have that information; right?
A. Well he had it --
It was available to him with some work, but it wasn't in those places.
Q. It wasn't in any of the data sets that he used; right?
A. That's -- that's why I pointed it out. That's my criticism.
Q. Is it your testimony that Zeger had that information in his possession and didn't use it?
A. Well I don't know that. But he has it within his reach and doesn't use it, and I -- it's certainly my testimony that it's critical.
Q. And -- and what is the basis --

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A. Let me just finish this up.
Q. Yeah.
A. Diet, exercise, and family history are not controversial items when we're talking about health outcome, and I -- and that information is available and I think it's important, and I think he should have used it.
Q. Yeah. Let's talk about personal and family medical history.
A. Okay.
Q. All right? Is it your testimony that Zeger had this information available to him?
A. Yes, I think so.
Q. And what is the basis for that statement?
A. That it's the sort of information that can be found in the state of Minnesota. It is, no doubt, within the reach of the Attorney General. I say that --
Q. Yeah. You're not a lawyer.
A. -- more --
I'm not a lawyer.
Q. Yeah. And so you're not familiar at all with confidentiality laws; is that right?
A. Well I have only a layman's understanding.
Q. Now you also identify alcohol and drug use. Do

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you see that?
A. Yes.
Q. Was there any information about alcohol and drug use in NMES?
A. I think there might be an alcohol variable in there. It's my recollection. I don't have a note here that verifies that. I think -- I think that is in there.
Q. Was there any alcohol or drug-use information in the Medicaid claims data?
A. There may --
I'm not sure, but there may be, because there are ICD-9 codes that refer to alcohol. The word alcohol appears in the description of the ICD-9 disease.
Q. What ICD-9 codes are those?
A. I don't have an ICD-9 list here, but maybe I'll remember to bring one next time. I can show you.
Q. Then your testimony is that --
A. Also --
Q. -- alcohol use --
A. I'm sorry, let me just finish this. Less directly, there are ICD-9 codes for things like cirrhosis which are alcohol-related.
Go ahead, please.

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Q. Yeah. Is it your testimony that there is information in the Medicaid claims data about alcohol use?

A. I would --

I would have to check to really be sure of this, but my recollection is that there are in that database descriptions of the treatment, and I think those descriptions are either ICD-9 or maybe a different coding system, but I -- if they're ICD-9's or things like that. There are treatments that I've --

I've seen ICD-9 codes that indicate alcohol, yes. I'll bring them in and show you.

Q. The ICD-9 codes indicate treatment for diseases; right?

A. Yes. But I think there's an ICD-9 code --

I shouldn't try to do this from memory. I'll try to get the list and --

The long list of ICD-9 codes, I have the recollection, has some codes that indicate alcohol.

Q. Now did you then take those supposed codes in the ICD-9 manual and include them in the Zeger model and run them?

A. I don't think -- if they're --

If they were already included, when I ran his

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model I would have done that. But I didn't make a change.

Q. So the answer to my question is no, you didn't include any ICD-9 codes for alcohol.

A. I believe he leaves them out.

Q. And did you --

A. But that --

Q. -- put them in?

A. Wait a minute. He does different things in different places, so I've got to check.

Q. My question is as to what you did, and I'm asking whether you actually modified the Zeger model by putting into the Zeger model supposed ICD-9 codes that dealt with alcohol. That's my question.

A. Okay. I did not modify it. I'm saying that they are in there, and if they were in there when he sent me his calculations, they were still in there when I ran it, but I didn't modify it.

Q. So are you now saying that Zeger did not omit a variable for alcohol?

A. No. We're mixing up a lot of different things here.

I'm not changing my testimony. And if you want me to explain, try to clear this up, I will.

Q. Well what I'm -- I'm attempting to get at is

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very simple, and that is whether you yourself actually included in the Zeger model some variable for alcohol and then ran that model to see what the new result would be?

A. I see now how we've gotten off track.

Q. That's all I'm asking. It's a really simple question. Can I get an answer to that question?

A. Well read it back and I'll see if I can answer it.

(Record read by the court reporter.)

A. Can't answer that without clarifying what you mean by "the Zeger model," because there's many different things that you could have in mind when you say that, or that I could have in mind.

Q. Did you change --

Did you add an alcohol variable to any --

A. I didn't change his models.

Q. -- of Zeger's models?

A. I didn't change his models. But in some areas of his calculations he has all expenses, and all expenses would include those categories. But I didn't make a change.

Q. All right. So you didn't include an alcohol variable for any of the Zeger models and determine what the new result would be.

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A. I made no change.

Now I did change -- I did some other analysis that we'll come to, but I think it will take us afield. I made no change of the type we're talking about here.

Q. Okay. So you don't know what effect that would have on plaintiffs' damages.

A. Oh, I think I have an idea about that, sure, but I haven't actually done the calculations.

Q. All right. Certainly you could sit here and speculate about what it would be.

A. This is --

I would try to avoid raw speculation. This is an idea borne of an understanding of the issue of confounding and the relation of diet and exercise and other things like that I've listed on page six to help out. I think they matter. I think they would show up as mattering.

Q. So you've not done the calculation and you can't sit here and tell me specifically what difference it would make to plaintiffs' damages; correct?

A. Not --

MR. BIERSTEKER: Asked and answered.

A. Not specifically without doing it, but --

Q. Okay. Now let me ask you about this next

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variable, dietary factors. Is that information contained in NMES?

A. Diet?

I don't think so.

Q. Is that information contained in BRFFS?

A. It might be, but I'm not -- I don't have a list of all the variables in front of me here.

Q. Are dietary factors contained in the Medicaid claims information?

A. Probably not.

Q. What about in the Blue Cross Blue Shield Minnesota claims information?

A. I would --

I would think not.

Q. Is exercise contained in NMES?

A. I think there's a -- there is an exercise variable, I believe, in NMES.

Q. And --

A. The next time I'm going to bring two boxes. I'll bring all the coding manuals.

Q. Do you know what the question was --

A. I answered --

Q. -- for exercise?

A. Oh, I'm sorry.

No. I'd have to look it up. I recall it was a

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fairly rough-cut question, but I don't recall the exact wording.

Q. Is there exercise information in BRFFS?

A. That's where I'm drawing a blank. There might be, but I -- I'm getting fuzzy on that data set. And maybe I can find something as we go along that will help me with that.

Q. Is there exercise information in the Medicaid claims data?

A. No, I wouldn't think so.

Q. Is there exercise information in the Blue Cross Blue Shield Minnesota claims data?

A. I wouldn't expect that, no.

Q. The next factor that you identify is occupation. Is there information in NMES regarding occupation?

A. I don't remember any, but this is the sort of --

If you go through all of these items, I'm going to have the same kind of answer. I don't have a sharp recollection of all the variables in all these different databases, but I'll -- I'll do my best, but it's going to be a little fuzzy.

Q. Is there occupation information in BRFFS?

A. I don't recall that there is.

Q. Is there occupation information in the Medicaid

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claims data?

A. No. This kind of information --

You can -- that's an easy one. You can skip the billing data. I don't think we're going to see any of this information in the billing data.

Q. Let's go on to the next factor, which is toxic exposures. Is there information in NMES regarding toxic exposures?

A. I don't think so, but I can check on this.

Q. Is there information --

Is there information in BRFFS regarding toxic exposures?

A. No, I don't recall that.

Q. Is there information in the Medicaid claims data about toxic exposures?

A. I wouldn't expect it.

Q. Is there information in the Blue Cross Blue Shield claims data about toxic exposures?

A. I wouldn't expect it in any of the billing data.

Q. Let's go to the next factor, which is depression. Is there information about depression in NMES?

A. I don't think so, but I -- I -- it's possible that there's a treatment category that's indicated. I just have to check all these questions because I

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just don't have that much of a memory of every variable.

Q. And is there information about depression in the BRFFS data?

A. I'll have to check.

Q. So you don't know as you sit here today.

A. No.

Q. Is there information about depression in the Medicaid or Blue Cross Blue Shield claims data?

A. Maybe, if -- if a treatment code is indicated for that. But I'll have to check.

Q. Let's go to the next factor, which is anxiety. Is there information in NMES regarding anxiety?

A. I don't think so, but I'll check.

Q. Is there information in BRFFS regarding anxiety?

A. I don't think so, but I'll check.

Q. Is there information in the claims data about anxiety?

A. I don't think so.

Q. Let's go to the next item that you have listed here, stress. Is there information in NMES regarding stress?

A. I don't think so, but I'll check on these.

Q. Is there information in BRFFS regarding stress?

A. I'll have to check.

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Q. You don't know as you sit here today?
A. No. I'd have to get the coding manual and see all the variables.
Q. And is there information in the Medicaid claims data about stress?
A. I don't think so, but I'll check on it.
Q. Is there information in the Blue Cross Blue Shield claims information about stress?
A. Same answer.
Q. Then let's go to the final factor that you mention here, mental disorders. Is there information in NMES about mental disorder?
A. There might be. Might be a category. I'll have to check.
Q. Is there information in BRFFS about mental disorders?
A. I don't think so, but I'll check.
Q. Is there information in the Medicaid claims data about mental disorders?
A. Probably, but I'll check.
Q. "Probably" you say?
A. Yes. There's probably a category, but I -- I just haven't got a photographic memory. I'll have to go take a look at the variables.
Q. Okay. And is there information in the Blue

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Cross Blue Shield claims data about mental disorders?

A. I'll check.

Q. So you don't know as you sit here today.

A. I don't know for sure on any of these. For the last 15 minutes I've been trying to tell you that.

Q. Now would you agree that variables such as depression, anxiety, stress, may be endogenous?

A. What do you mean by that?

Q. Do you understand the term "endogenous?"

A. I understand it in context, but what do you mean by it?

Q. What is your understanding of "endogenous?"

A. An endogenous variable is a variable in a system of equations that appears on both the left- and right-hand side of the system.

Q. What does that mean?

A. Well that's what "endogenous" means. It means endogenous.

Q. Can you then determine, as between these variables, a cause-and-effect relationship?

A. Using statistical methods you mean?

Q. Yes.

A. With non-experimental data?

Well the answer is you might be able to under some circumstances, might not in others. I was

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trying to get a case where the answer was a clearcut "yes" or "no."

Q. Well is it conceivable that people who smoke and are sick are also depressed?

A. Yes.

Q. And are you saying that depression then is independent from smoking?

A. I didn't say that.

Q. I'm asking.

A. I never said it.

Q. So you would agree that the two are related.

A. Maybe.

Q. And would you characterize the depression in that instance as an endogenous variable?

A. Not necessarily.

Q. Why is that?

A. I haven't seen a system of equations here.

Q. So you'd have to see a system of equations before you could determine whether a variable was endogenous; is that right?

A. Yes.

Q. Okay. And short of that, you just couldn't make any determination.

A. Well that's because that's what I mean by "endogenous." If you mean something different, then

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you'll have to explain what you mean. Far be it from me to tell you what you mean.

Q. Appreciate that.

Now if we go back to page six and your list of these variables that supposedly Zeger omitted, my understanding from your testimony is that you did not try to include any of these variables into Zeger's model and run the model or models to see what the difference was; right?

A. That's right.

Q. So you don't know how they would change plaintiffs' damages; right?

A. I have an idea, but I don't have the specific idea I would have if I had actually done what you asked.

Q. In fact, have you ever run a model --

A. Yeah.

Q. -- to --

Let me finish.

A. Go ahead.

Q. Have you ever run a model to determine the costs of smoking-related disease with all of the variables that you list here on page six?

A. No.

Q. And you've never done any sensitivity testing to

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see how those variables might affect the influence that smoking has on health-care costs; right?

A. I'm not sure how to answer that. I've done some calculations that I think address that, but they don't go all the way.

I'll -- I'll give you a short description if you're interested.

Q. Well what I'm asking is whether or not you have done any sensitivity tests on any model --

A. What do you mean by that?

Q. Do you have any understanding of the term "sensitivity test?"

A. I know what I mean by it, but I'm just not sure what you're meaning.

Q. What do you mean by it?

A. Well that would mean, to me, taking a calculation and making a change in some aspect and then redoing the calculation and comparing the results of the two calculations in view of the change you made.

Q. Let's use your definition.

A. Okay.

Q. Have you ever done any sensitivity test to determine the effect of any of these variables on the relationship between smoking and health-care costs?

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A. Not health-care cost. I've done it on health, but not -- not the dollars.

Q. And can you identify the study or studies that you're referring to?

A. Earlier in the day we talked about certain charts and exhibits that I have used, for example, in Florida, and that would -- that would be the best place to look.

Q. Now is this information based on this data from the American Cancer Society?

A. Yes.

Q. Yeah.

A. But it's not --

Just so I don't mislead you, it's not dollar data, it's health data.

Q. Now can you cite for me one published study showing that personal and family medical history eliminates the effect of smoking on disease?

A. Well let me think. I'm not sure what -- what that would mean.

Q. What are you having a problem with?

A. Understanding the question.

Q. Okay. Well here, let me take it --

Let me break it down.

A. I can give you my interpretation and answer it

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that way. If you mean by "the effect of smoking on disease" the relative risk in two populations, one being smokers and the other not, and if you then mean for some disease whether, let's say, in those two populations, if they were to differ systematically by family history, whether that relative risk would without those differences be larger than one and with those differences than less than one, I don't know of any study that I've seen from others, but I've done calculations like that.

Q. Yeah, I'm not -- I'm not asking about calculations that you may have done in connection with your work for the tobacco companies, I'm asking you about published studies done by scientists independent from the tobacco companies --

A. Uh-huh?

Q. -- that find that the effect of personal and family medical history eliminates the effect of smoking on disease. Do you know of any such study?

A. Well I don't --

The way you pose that question, it just doesn't make sense to me. That's why I tried to rephrase it in a way that would make sense to me.

Q. Okay. So you know of no such study.

A. I don't know how to answer the question as you

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phrase it without reinterpreting it in some way that makes sense to me, which I've been trying to do.

Q. Well if you would simply confine yourself to published studies and not the work that you've done for the tobacco companies over the past 10 years --

A. Then let me help out. And studies that deal only with family history and not other things; is that right? Because if that's it, I don't know of any such studies, and we're done.

Q. Now do you know of any studies -- published studies showing that alcohol and drug use eliminates the effect of smoking on disease?

A. I don't know what you mean when you phrase it that way.

Q. Okay. What is it that you don't understand? I'll be happy to go over each word.

A. Lighten up. Lighten up.

Q. Well, but I'm not sure that I understand --

A. Easy over there.

Q. -- your difficulty with that question.

A. Okay. It's the term or the concept of eliminating an effect. I don't know what that means.

Q. Okay. Are you more comfortable with reducing relative risk?

A. I'm comfortable with the -- first of all, if

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we --

That's an improvement to -- so I know what effect we're talking about. We're talking about relative risks. That's an improvement. And then I have to know which -- which groups are being compared. If you compare --

If you get a relative risk between two groups, that relative risk is whatever it is. It doesn't get eliminated all of a sudden if you do something else. But it may be that there's some other groups you compare where there is -- there's a different relative risk, and we're going to have to get that all out on the table before there's a clear question.

Q. Yeah. What I'm asking for is your knowledge of published studies. All right? And what I'm asking as its face is: Do you know of any published studies that contradict the Surgeon General's conclusion that smoking causes diseases such as lung cancer?

A. Oh, yes, I -- I do.

Q. Tell me one.

A. Okay.

Q. Apart from what you've done. I'm not interested in what you've done over the past 10 years for the tobacco companies. Remember, I'm talking about published studies.

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A. Okay. I'm trying to interpret your question. Takes some interpretation.

So what we're looking for is published studies that address the issue of smoking and disease -- smoking and lung cancer disease, you said -- and could in my view be fairly interpreted as raising questions about the Surgeon General's conclusions regarding --

Q. No, I said contradict.

A. Well that -- I --

That requires interpretation. Raises, contradicts, or presents some facts that would not necessarily be in agreement with, in that sense of "contradict."

Yes.

Q. Tell me.

A. Well there's a lot of studies on lung cancer and relative risks from other things.

Q. And you're telling me that those studies show that the Surgeon General is wrong in concluding that smoking causes lung cancer?

A. Yes, I think that's --

Q. Okay.

A. -- what I conclude.

Q. Just tell me --

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A. And I'll explain why if you want.
Q. Tell me what these studies are. I'm not interested in your explanation, what I'm interested now in is if you can identify --
A. Okay.
Q. -- one of those studies for me. Just one.
A. Uh-huh. By title, or doing my best to describe --
Q. By title.
A. I can't do that, as I said.
Q. Give me the best description you have --
A. Okay.
Q. -- where could I find this study that you say contradicts the Surgeon General.
A. And about which I would love to try to give an explanation, but you don't want it.
Q. That's not --
That's not what I've asked. What I've asked is for you to just give me a description of the study.
A. Uh-huh.
Q. You know, I'm really not interested in your explanations and rationalizations at this point.
A. Okay.
Q. I just want an answer to my question about whether you can describe the study for me, a study

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which you can't apparently lead me to by any reference. But go ahead.

A. Well I don't recall the exact title, but it -- there's a study that comes to mind of -- prompted by your question that was a study of smoking in Japan and comparing male smokers in Japan to male smokers in the United States who differ with respect to smoking in that the Japanese men smoke more and -- but differ with respect to lung cancer in that the Japanese men have only about a third of the lung cancer rate. That is a fact that you'd want to reflect on if you were thinking about the Surgeon General's point. Doesn't seem to go neatly in step with that.

Q. Is there some suggestion in that study that smoking didn't cause lung cancer? Is that what you're saying?

A. I don't need to read that study to make that suggestion. I can make that to you right now.

Q. No, I -- I'm asking you about the study. Okay?

A. What about it?

Q. I just asked you a question. Are you saying that that study suggests that smoking doesn't cause lung cancer? Is that what you're saying?

A. It suggests to me that there are factors, such

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as diet, which may be important in understanding the risk factors of lung cancer. And there are other studies too.

Q. Yeah. Are you saying that that study shows that smoking does not cause lung cancer? Can you answer that question for me?

A. I don't believe that anybody has shown that smoking causes lung cancer, but I believe that those judgments have been made by other -- judgments of that kind have been made.

Q. Okay.

A. But a proof of cause? That's -- that's a tough thing to do with this kind of data.

Q. Can you tell me any other study that supports your contention that smoking doesn't cause lung cancer?

A. That's not how --

MR. BIERSTEKER: Object to the form of the question.

A. That's now how I reached --

You misstate my contention.

Q. No, I'm --

All right. Can you identify for me one study, in addition to this study of Japanese and American smokers, that demonstrates that smoking does not

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cause lung cancer?
A. No.
MR. BIERSTEKER: Object to the form of the question.
Q. I'm just asking if you know of any such study. That's all.
A. Okay. If you want to rephrase it that way, we'll start all over again, and there -- there are no such studies one way or the other.
Q. Okay. So there are no studies that show that smoking causes lung cancer; right?
A. I -- I agree.
Q. Okay. And there are no studies that show that smoking does not cause lung cancer.
A. I agree.
Q. Okay. So the link between smoking and disease, as far as you're concerned, has not been established; is that right?
A. The statistical associations have been established, but it's a mistake to other -- to do anything other than to make judgments about cause from association.
Q. So in your opinion there's been no causal link established between smoking and lung cancer; right?
A. Well I -- I'll speak to the statistical studies

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because that's my area, and I'd say yes.
Q. Can you answer the question about whether or not you think studies have established a causal link between smoking and disease?
A. I thought I just did.
Q. All right. So is it your testimony that the causal link between smoking and lung cancer has not been established?
A. Not through statistical studies. I'm speaking of those because that's my area of expertise.
Q. Has it been established through anything else?
A. I don't know about that because I am not a --
Q. You're not an epidemiologist; right?
A. -- biophysicist.
Well we'll have to quarrel about that observation, but let's quarrel. I'm trained in the techniques of the study of --
Q. Okay.
A. -- statistical data, including that data involving human health, and that's how I reach my conclusions.
THE REPORTER: Let's take five.
MR. HAMLIN: Sure.
(Recess taken.)
BY MR. HAMLIN:

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Q. I want to direct you to page seven of your report, which is Plaintiffs' Exhibit 4827. At the top of the page you state that "In fact, when the NMES dataset is used to model health expenditures directly, rather than by Zeger's disaggreagated method, the inclusion of exercise and mood variables substantially affects the outcome." Do you see that?

A. Yes.

Q. All right. When you say that NMES is used to model health expenditures directly, what do you mean by that?

A. I'll explain, but I'm motivated to insert something before. You asked before the break about calculations I've done where I might have included things like exercise and mood, and we've just stumbled on one that I didn't think of before.

With that preliminary, I'll explain this. I'm referring to the calculation I had done previously before the Minnesota -- before I turned attention to the Minnesota matter, involving Vincent Miller's work. Are you -- is that --

Q. That's what you're referring to here?

A. Yes. Yes. And --

Q. Have you produced this calculation that you made?

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A. Yes. It's in my -- my materials.
Q. Can you identify for me the notebook that it's in?
MR. BIERSTEKER: I think, too, just for the record, the notebooks reflect output that is generated from the computer programs previously produced. This is not new material. This is just the output from the materials previously produced.
THE WITNESS: Right. If you run the programs I gave you, you'll get this output.
A. The answer to the question is the notebook, Exhibit 4832.
Q. That's where this analysis appears?
A. Yes.
Q. Now did you control for age and sex in this analysis of the NMES data?
A. I'll look.
Yes. Now when I -- when you say "did you," remember, this is the V. Miller work, and all I've done is added those two variables. But the V. Miller work already had age and sex and a number of other variables in it, I can see by looking at the output.
Q. Now when you refer to the V. Miller work, this is work done by an expert who has not been identified by the state of Minnesota; right?

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A. Right. That's --

You have L. Miller. This is V. Miller.

Different Miller.

Q. Now you say that this substantially affects the outcome; right?

A. Yes.

Q. All right. What model did you start with before you added the exercise and mood variables?

A. Well it's a great, long, complicated model. No surprise. But it's described in -- in its entirety in tab 15 of --

THE WITNESS: When you do this, will you get the tabs, too? Otherwise this will be a mess.

THE REPORTER: I will.

A. In tab 15 of Exhibit 4832.

Q. Right. And this is not -- or strike that.

It's Vince Miller's model you're talking about.

A. Yes.

Q. All right. This is not Zeger's model.

A. Not Zeger's model, not L. Miller's model. V. Miller.

Q. Now you talk about mood variables here. What variables are you referring to?

A. I think the questions were something like "down in the dumps" and "very down in the dumps."

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Q. Is this in NMES?
A. That takes me back to another state. I'll have to try to remember.
Q. Well I mean in your report you say when the NMES data set is used to model health expenditures directly.
A. Right. So the suggestion --
I was going to try and find a way to check that, but if I can trust my own writing here, it must be based on NMES. I don't see anything that verifies that, but that's what my men sense says. So subject to check, I guess that's what I'm telling you.
Q. And you think there's a question in NMES that deals with whether somebody is down in the dumps?
A. That's my recollection.
Q. Are there any other mood variables that you're referring to in this sentence?
A. No.
Q. Did the exercise variable come from NMES?
A. I -- I think so, yes. I'll -- I'll try and check this overnight, and if I misspoke on this, I'll be able to tell you in the morning. I'll just check that.
Q. Now you say that the inclusion of the exercise and mood variables substantially affects the

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outcome. Well what was the outcome before the inclusion of exercise and mood variables?

A. Looks like 738 million dollars.

Q. What does that represent? Is that Medicaid money?

A. Yes.

Q. Is that smoking-attributable expenditures?

A. Yes, as calculated by Vincent Miller.

Q. Over how many years?

A. Oh, a lot of them. I think 19 --

He went out, I think, to the year 2000.

Q. In what case was this?

A. Mississippi.

Q. Well what was the earliest year included in that calculation?

A. 1970.

Q. And it went to the year 2000?

A. Yes.

Q. And what was the effect when you included exercise and this mood variable?

A. A 13-percent reduction.

Q. Now did you investigate to see whether this mood variable actually added independent information beyond smoking?

A. I'm not sure what you mean by that. But if I

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can interpret it sensibly, I would say yes.

Q. Well when you ran this model with this new variable in it, what did you do?

A. I included it.

Q. Did you do any further investigation?

A. No further investigation.

Q. So you didn't investigate to see whether the mood variable, depression if you will, was capturing the same effect as smoking.

MR. BIERSTEKER: Object to the form.

A. I don't understand that. Any interpretation I can give makes me want to say no, but I don't think I really understand you.

Q. Well I think we talked about the possibility that if one has a smoking-related disease, one may be depressed.

A. I'm with you now.

Q. Right?

A. Okay.

Q. And if one has a smoking-related disease, such as lung cancer, one may not exercise; right?

A. I'm --

I understand that.

Q. I mean you agree that's a possibility.

A. Yes.

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Q. So what I'm asking is whether or not you were -- you actually investigated whether or not the mood variable was adding information independent from smoking.

A. That's a harder thing for me to understand. All of these variables are correlated. You're not going to find --

Q. Yeah.

A. -- any of them that are statistically independent.

Q. Yeah. I mean if -- if the mood variable is correlated to smoking, then you're not really adding any independent information and the mood variable is just another measure of the smoking effect.

A. No.

Q. But as I --

As I understand it, you didn't do any investigation of this one way or the other.

A. Well I didn't understand the question before. Now that I've got a better grip on the topic, I did do some other calculations that addressed that, we'll call it the endogeneity point, but I don't -- I don't -- I did not include that material, so I can't really tell you much about it specifically. But I remember doing it.

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Q. Okay. You don't have any of those calculations in any of your notebooks; is that what you're saying?
A. Not this sort of what we'll call the endogeneity-check extra work, it's not in here.
Q. Now are you saying you did an endogeneity check for this particular exercise here about using the NMES data set to model health-care expenditures directly?
A. It's been a little while, but I -- I do remember investigating that some time ago. And I haven't looked at it since and didn't bring it, so I can't --
Q. Well was that investigation done in connection with your exercise on Vince Miller's model?
A. Yes. That's what I'm talking about.
Q. Now the addition of these variables did not eliminate or wipe out --
A. Reduce to zero.
Q. -- reduce to zero the smoking-attributable expenditures calculated by Vince Miller; right?
A. That's right.
Q. Did the R-squared change?
A. I'm sure it did.
Q. Did you calculate it?
A. I'll have to check to see if it's printed out here. But I can tell you from the first principles I

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know: Had to. I don't even have to look to know the answer to that.

Q. Did the smoking coefficients change from significant to insignificant?

A. That I'd have to check.

Q. Now you've not done the same exercise on the Zeger model; right?

A. That's correct.

Q. So as you sit here today, you can't tell me specifically what effect it would have on the Zeger model; right?

A. Right.

Q. Now let me ask you this --

MR. BIERSTEKER: Tom, --

MR. HAMLIN: Yeah.

MR. BIERSTEKER: -- I don't mean to interrupt, but I should tell you that this is an area that may be part of our supplementation to come. Okay?

BY MR. HAMLIN:

Q. Well let me ask you this: Have you been asked to do that?

A. I've been asked to look at that, yes. But I haven't got it done yet, so I can't report to you.

Q. Now let's talk about R-squared for just a

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moment. Now is R-squared another name for means square error?

A. No.

Q. Okay. What is --

What is means square error?

A. Well if we had some variables that we'll call errors, if you square their values and add them up and then divide by how many you had, --

Q. Yes.

A. -- that's it.

Q. Okay. Do you get R-squared by basically an equation that looks like one minus the means square error over the means square error?

A. I didn't follow you, but my -- let --

I can just give you of the equation. It's the sum of squares total minus the sum of squares error divided by the sum of errors totaled. This is --

You don't want to get this by way of transcript. This is in all the standard books, you can just read it. I don't have in mind anything other than the ordinary interpretation of that.

Q. All right. Does the equation one minus the means square error over the means square error have any meaning to you?

A. I'm not sure because I'm not following you

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exactly, but it doesn't sound quite right. I guess what I'd want to be careful about is what your degrees of freedom are in that calculation. But if it's equivalent to what I said, then I'm fine.

There's a shortcut to the calculation. You don't ever have to calculate the means square error if you do it my way.

Q. Well I'm just asking you if that equation that I just described describes R-squared.

A. I'm not sure. We're going to have to write it down completely for me to know --

You're saying this in words. This is not a business that lends itself to -- to the words. If you want real precision, I -- I --

Q. Well can you just jot this down?

A. I can't believe --

Yeah, sure.

I can't really believe there's going to be a controversy over this point, so I'm not concerned that this is going to crop up and be a problem.

Q. I'm just asking whether or not this particular equation is familiar to you.

A. Well you're --

Q. One minus the means square error over the means square error.

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A. Doesn't sound right.
Q. Okay.
A. Let me do my -- if you -- if you get --
If you do something a little different than is common with the calculation of means, this could be equivalent. But anyway, I'll show you the way I do it.
Q. Well here, my question was very simple and you've answered it.
A. Want me to stop?
Q. You've answered it.
Yeah. I'm really not interested --
A. Okay.
Q. -- in pursuing it any further.
A. All right.
Q. Okay?
A. Anyway, what I was going to write out is what you can find in any book.
Q. Now I want to direct your attention to page seven of your report, and specifically to this section marked "Time." The last full paragraph on page seven, you talk about a specific calculation. You say, "For example, one could compute the lifetime costs of smoking to this individual, continuing the analysis through the longer of his expected lifetimes

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as a smoker or hypothetical never smoker." See that?
A. Yes.
Q. Now have you made a calculation of this sort with respect to the Zeger model?
MR. BIERSTEKER: Object to form.
A. I don't think so, but let me just read this to make sure.
No, I haven't done the calculation that's described here.
Q. Okay. You've not done that calculation.
A. Right.
Q. I think you previously agreed that smokers have shorter lifetimes than non-smokers; right? On average.
A. Right.
Q. Now you say on page eight that one has to estimate the health-care costs attributable to smoking for a group of individuals over time. Do you see that?
A. Not yet.
Q. It's on the top of page eight.
A. Yes.
Q. Now I think that you've already agreed that people go on and off Medicaid; right?
A. Well I don't know if I've already agreed, but

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I'll agree to it now.
Q. All right. And I thought you did. Otherwise I wouldn't have said that.
A. We did talk about the --
Q. Yeah.
A. -- issue of numbers of people in groups. But I agree to that.
Q. Now as I understand the comparison that you would make to the one that you're describing in this section, you would compare two groups of Medicaid recipients, smokers, and the smoker -- smokers as hypothetical never smokers; right?
A. No.
Q. Well I think you -- let's --
Let's go back to page seven. You say "one could compute the lifetime costs of smoking to this individual, continuing the analysis through the longer of his expected lifetimes as a smoker or hypothetical never smoker."
A. Okay. For that --
Q. All I'm trying to do is set up a comparison here.
A. Okay. That's a comparison, not necessarily the only comparison.
Q. Okay. But the comparison you're talking about

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here would compare smokers and smokers as hypothetical never smokers.

A. Yes.

Q. And you --

A. Where it says "For example" means that there might be other things you'd do.

Q. And you would compare these two groups over their lifetimes?

A. What you would compare is the effect on the checkbook of the Medicare payer over a period of time.

Q. And if, as you indicated, smokers on average don't live as long as non-smokers, when you compare these two groups over time, you have to take that into account; correct?

A. That would be automatic.

Q. So if a smoker on Medicaid doesn't live as long as a non-smoker on Medicaid, then the state would spend less for the smoker over time.

A. Might, might not.

Q. How could they spend more?

A. Well maybe they were sick.

Q. That the smoker is sick?

A. I don't know. I mean there would be many different situations. It isn't automatic that it's

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one way or the other. But whatever the cash flows were, you would record them in your calculation and look at the two cases.

Q. And you would have to take into account the fact that smokers die prematurely.

A. You wouldn't -- wouldn't have to struggle for that. You would have -- for --

No, let me say it differently. You would record all of the cash flows that would occur to the checkbook of the state, we'll call it, whatever those are, and that would be -- that would be that simple, that you would just subtract.

Q. And that would include taking into account the premature deaths of smokers on average; right?

A. If that's an effect, that would be included. Whatever factors are affecting the cash flows would be included.

Q. Now have you actually made that calculation with respect to the Medicaid population at issue here?

A. No.

Q. So you don't know as you sit here today what difference it would make in the plaintiffs' damages.

A. I don't know it because of doing the calculation. I -- I have an idea because I understand how these calculations are likely to work

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out.

Q. It would reduce plaintiffs' damages; right?

A. I think so.

Q. And --

A. But however it works out, it works out. I haven't actually done it.

Q. Have you calculated the probability of whether this hypothetical non-smoker would have stayed on Medicaid over this time period or the lifetime that you indicate in your report?

A. No, I haven't done the calculation.

Q. Okay. Now you say that Zeger fails to consider the passage of time; right?

A. In this sense, yes.

Q. Now are you saying that Zeger does not take into account that smokers die prematurely?

A. I'm saying he does what you might call a cross-sectional study rather than a longitudinal study.

Q. And are you saying that Zeger should take into account that smokers die prematurely in calculating damages for the plaintiffs in this case?

A. I'm saying that what he should do is take into account all of the cash flows under the two alternatives, whatever they are.

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Q. And if smokers die prematurely, Zeger should take that into account; right?
A. Whatever the cash payments from the state on behalf of smokers are should be taken into account.
Q. And if those cash payments are affected by the premature death of smokers, then that should be taken into account; correct?
A. I expect they would be affected by both morbidity and mortality.
Q. As well as the premature mortality of smokers; right?
A. I don't want to --
I keep avoiding your loaded term because I think that it's unnecessary to describe my opinion.
Q. Well in fact you do agree that smokers do die prematurely on average; right?
A. I don't. I agree that they have shorter average life-spans if you compare the two groups of smokers versus never smokers.
Q. And that that has to be taken into account in calculating damages according to your methodology; right?
A. I don't see it that way. I think what needs to be taken into account is all of the cash flows from the state checkbook.

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Q. So you don't think that the premature death of smokers has anyplace in the calculation of damages according to your methodology; is that right?

MR. BIERSTEKER: Objection, asked and answered. And also objection to form.

A. I don't think you need to define or resort to that particular loaded term to understand what I'm trying to tell you, which is I think you need to take into account all of the cash flows out of the state checkbook, so to speak, that would occur in two different scenarios.

Q. Can I get an answer to my question?

MR. BIERSTEKER: Same objections.

A. I thought that was an answer.

Q. I'm asking you whether, according to your methodology, you take into account or believe it should be taken into account, the fact that smokers die prematurely.

MR. BIERSTEKER: Same objections.

A. If you mean by that that both the mortality and morbidity of two groups being compared would influence the cash flows, I would agree.

Q. And the two groups being compared are smokers and non-smokers; correct?

A. Probably not. The two groups I had in mind were

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each composites of current and former and never smokers.

Q. Well let's go back to your expert report where we started. On page seven --

If you can turn to page seven.

A. I'm on seven.

Q. Yeah. You say that "one could compute the lifetime costs of smoking to this individual, continuing the analysis through the longer of his expected lifetimes as a smoker or hypothetical never smoker."

Let me ask you this: Are you making a comparison in that sentence between a smoker and a hypothetical never smoker? "Yes" or "no."

A. Yes, in that sentence that talks about "For example...."

Q. Right.

A. Let me clarify, though, that when I talk about the two groups, I was talking about something more relevant to the kind of calculation I think is appropriate for this particular case.

Q. Well what I'm trying to do is understand what you mean --

A. Uh-huh.

Q. -- by this sentence where you say, "For example,

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one could compute the lifetime costs of smoking" --

A. Yes.

Q. -- "to this individual, continuing the analysis through the longer of his expected lifetimes as a smoker or hypothetical never smoker." Now as I understand it, --

A. Uh-huh.

Q. -- you are attempting to compute lifetime costs; is that right, according to this example?

A. Lifetime costs to the state --

Q. Correct.

A. -- for Medicaid.

Q. And what you're doing is you are comparing smokers to hypothetical never smokers; right?

A. Medicaid.

Q. On Medicaid.

A. Yes.

Q. Okay. And in that example your methodology takes into account the fact that smokers do not live as long as non-smokers.

A. I don't know about that.

Q. Oh. Now you don't know whether smokers live as long as non-smokers.

A. Well I don't know about answering your question is what I meant, the way you phrase it.

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I know this, that the costs throughout their lifetime would be the two things that I would compare. I haven't actually calculated expected lifetimes in Medicaid for particular groups of smokers and non-smokers, so I don't know exactly how that would come out for those groups. But however it came out, whatever those cash flows were, those would be the ones I would compare.

Q. And if smokers did not live as long as non-smokers and did not incur as many costs, that would all be taken into account in your calculation; right?

A. No. The latter. If they did not incur as many costs, that would be taken into account.

Q. And if they did not incur as many costs because they did not live as long as non-smokers, your calculation would take that into account; right?

A. It would take that into account or it would take it into account if they live longer. Whatever the costs were.

Q. Now do you know Dr. Kip Viscusi?

A. I don't know him.

Q. Have you ever heard of him?

A. I've heard that name, but it must be from reading the name because I don't think I ever met

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such a person.
Q. Do you know whether he's an expert for the tobacco companies in this case?
A. No, I don't. I've not heard his name mentioned in context of the case.
(Plaintiffs' Exhibit 4845 was marked for identification.)
BY MR. HAMLIN:
Q. Let me show you what has been marked as Plaintiffs' Exhibit 4845. If you turn to the second page, you'll see the first page of an article entitled "CIGARETTE TAXATION AND THE SOCIAL CONSEQUENCES OF SMOKING" by W. Kip Visvusi. Do you see that?
A. Yes.
Q. Now I want to direct your attention to the executive summary. Specifically I want to direct your attention to the sentence that states, "Detailed calculations of the financial externalities of smoking indicate that the financial savings from premature mortality in terms of lower nursing home costs and retirement pensions exceed the higher medical care and life insurance costs generated." See that?
A. Yes.

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Q. Do you agree with that statement?
A. I don't know. I'd have to read the article.
Q. So you can't tell me as you sit here today whether you agree with that statement or not.
A. No. This is one sentence out of the executive summary. I --

If you want me to read the article, and I have time to do that, I would try to react to this.

Q. Okay. So you don't have any opinion about that as you sit here today.
A. Well let me -- let me see if I can dredge up some thoughts here.

No. I'd have -- it's talking about detailed calculations. I -- I'd have to look -- look at what he's talking about to see if I could understand it.

Q. Okay. You're totally familiar with the concept of using premature mortality in calculating smoking-related health expenditures?
A. I haven't heard a question yet, but I think when I do I'm going to say no.

What's the question?

MR. HAMLIN: Why don't you read it back.

(Record read by the court reporter.)

MR. BIERSTEKER: I'll object to form.

A. I don't think I am. But could we phrase it as a

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question, and I'll be sure I answer.

Q. Sure.

Are you familiar with the methodology that takes into account the fact that smokers die prematurely in calculating costs attributable to smoking-related diseases?

MR. BIERSTEKER: Object to form.

A. I'm not sure what methodology that would be.

Q. You've never heard of that.

A. No, I'm not sure which -- what methodology you're referring to.

Q. Let me direct your attention -- your attention to page 92 of this article.

A. Okay.

Q. Viscusi writes in the third full paragraph, second sentence, "A comprehensive assessment of these costs suggest that on balance, smokers do not cost society resources because of their smoking activities, but rather save society money."

Have you ever heard that opinion voiced prior to today?

A. I'm not sure if it's the same opinion, but there's something like that that was in a New England Journal of Medicine recent publication by some -- I think some Dutch authors whose names I don't recall.

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Q. And that's the first time you'd ever heard of this.

MR. BIERSTEKER: Well I'm not sure what "this" is. Object to form.

A. It's the first I recall reading about it. I'm not -- I'm not thinking of something I'm not telling you. I was trying to sharpen my thoughts as to your question.

This thing that I'm reading now, it seems reminiscent of the recent thing that I read. And I don't recall reading any other articles like that. No, can't think of any others.

Q. Now Viscusi was deposed in this matter, and I just want to show you a page from his deposition where he is actually commenting on page 92 of his article on "CIGARETTE TAXATION AND SOCIAL CONSEQUENCES OF SMOKING" that's been marked as Exhibit 4845.

A. He's commenting on his page two, you say?

Q. Page 92.

A. Ninety-two.

Q. He's commenting on the sentence that I just read to you.

A. I'm sorry, but I've -- I forgot which one that was.

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Q. Well here, let me give you his deposition. Let me direct your attention to page 205.
A. Yes.
Q. Line four.
A. Okay.
Q. "Question: And if you would, turn to page 92, third paragraph, second sentence. Quote, "A comprehensive assessment of these costs suggest that on balance, smokers do not cost society resources because of their smoking activities, but rather save society money."

"Answer: Right.

"Question: Right. And they save society money by dying prematurely; right?

"Answer: That's -- that's essential for it, yes."

Now do you agree with Viscusi?
A. I don't know. He -- he's not talking about the thing I've been studying, which is Medicaid. But I -- I don't agree that that's essential for it from the point of view of Medicaid. But that doesn't make me disagree with him, because he's not talking about Medicaid.
Q. Okay. So you don't know whether or not smokers on Medicaid die prematurely; is that -- is that your

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testimony?

A. I --

MR. BIERSTEKER: I'll object to the form.

A. I don't want to adopt that loaded language because I think it's imprecise and doesn't accord with my way of thinking about these issues. But what I do not know is the average life for Medicaid smokers in certain groups as compared to Medicaid non-smokers in certain groups. That's -- I haven't done that calculation.

Q. Has the Surgeon General concluded anywhere that smokers on Medicaid do not die prematurely?

A. I don't think he's addressed that.

Q. Has the Surgeon General addressed whether smokers on average die prematurely?

MR. BIERSTEKER: Object to the form of the question.

A. He has made calculation --

Well, the various authors of the Surgeon General's report have made -- let me say it differently.

The report of the Surgeon General describes life expectancies in groups of smokers and groups of non-smokers, and the life expectancy in the groups they compare is less for the smoking group.

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Q. All right. Did the Surgeon General draw any distinctions about smokers who were on public aid with respect to their life expectancy?
A. Didn't address it. But you shouldn't conclude from that that whatever conclusion he reaches would apply to any subgroup. That would be -- that would be an error.
Q. Move to strike. Did --
I'm just asking you, --
MR. SILFEN: On what grounds?
Q. -- did the Surgeon General address the question of whether smokers on public aid had a different life expectancy from other smokers?
A. I don't believe he addressed it. But I think you should expect that it would be true.
Q. Yet you've not done that calculation.
A. No, I have not.
Q. But you can sit here and speculate that that would be true; right?
A. I don't think it rises to the level of raw speculation. I think I can anticipate that that would be true.
Q. You can anticipate.
A. Yes.
Q. I see. Without doing any calculation.

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A. Well for some calculations I don't know -- I don't have a real expectation of the outcome until I'm finished, but for many others I would. So that's what I would anticipate.

Q. Do you know if that calculation has been done by any legitimate scientist?

MR. BIERSTEKER: I object to the form of the question. It's also argumentative and I don't appreciate it.

Q. I'm -- I'm asking. I'm not saying that you're not a legitimate scientist. You haven't done the calculation.

MR. BIERSTEKER: Well Tom --

Q. I'm not even suggesting that.

MR. SILFEN: Let's -- let's just move on. Okay? One, that was not in the tone of our prior depositions, I don't think.

A. I don't understand the question. I don't believe you asked a question just now.

Q. Do you know of any study done by any scientists that suggests that smokers on public aid have a different life expectancy than smokers who are not on public aid?

A. No study comes to mind, but I would expect that result.

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Q. But you don't know of any study; do you?
A. I can't think of one. If I can think of one between now and tomorrow, I'll mention it. But I don't have any real doubt about this.
Q. That wasn't my question, whether you have any doubt about it.
A. Sorry. I just --
Q. I only asked specifically whether you knew of any study.
A. Okay.
Q. Okay? So I'd appreciate it if you would just answer my questions, and we actually can move on rather swiftly when you do that.
A. Well move -- move on then.
Are you through with the Viscusi thing?
Q. Yeah.
MR. BIERSTEKER: Do you want the deposition back?
MR. HAMLIN: Yeah.
BY MR. HAMLIN:
Q. Now let me ask you a hypothetical so that I can understand how this lifetime calculation that you reference on page seven of your report works.
Now assume for the purposes of the hypothetical that a cigarette smoker -- or strike that -- that a

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cigarette makes a smoker ill and kills that smoker within two years. Just for the purposes of the hypothetical. Are you with me?

A. I'm with you.

Q. Now what you're asked to do is calculate the Medicaid smoking-attributable health-care expenditure over 20 years. All right? Now I'm just saying that this is part of the hypothetical. That's your end result.

Now according to your methodology, would you compare the costs over the expected lifetime of an individual as a smoker who dies in two years to the hypothetical non-smoker who lives for 20 years?

A. So we add to the hypothetical the 20-year non-smoker. What would -- I would add --

I would add up whatever the Medicaid costs were paid by the state.

Q. For both the smoker and the non-smoker.

A. Right.

Q. All right. So in this hypothetical, the non-smoker lived 18 more years.

A. Yes.

Q. And for the purposes of the hypothetical, assume that Medicaid paid more for the non-smoker than the smoker.

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A. Okay.
Q. By your calculation, using your longitudinal approach, I take it the state could not claim any damages for the smoker; is that right?
A. According to your hypothetical, the state paid more in the alternative calculation than in the --
Well we'll call them A and B.
Q. Why don't we use the term "smoker" and "non-smoker."
A. Because those are individuals, and I'm talking about payments. But the payments associated with the smoker and the payments associated with the non-smoker. In your hypothetical, the state has paid more in the non-smoker case.
Q. And so by your calculation, using the longitudinal approach, the state could not claim any damages for the health-care costs expended for the smoker; right?
A. People can claim all sorts of things, but I can tell you that by your hypothetical, the state paid more in the non-smoker case.
Q. Well what I'm trying to ascertain is how would you apply your longitudinal approach to that hypothetical.
A. If there were no more people to be considered

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and this was the entire state's payments, and if the actual world which I was calling A for the smoker -- the one-smoker-in-the-world case, and the alternative world was B, then I say that -- and if the difference between the two was due to the -- let's see how you phrase it.

Q. It's not how I phrased it.

A. "The direct and proximate result of defendant conduct," whoever wrote that, then I would say that the direct and proximate cause of defendant conduct did not cost the state money.

Q. So under the hypothetical as framed, applying your longitudinal approach, the state did not lose any money for the smoker; right?

A. State paid more money in the alternative world than in the actual world in the hypothetical.

Q. I don't really understand what that means.

A. Okay. I thought it was easy, but --

In fact, I thought I was just reiterating what you told me.

Q. So as I understand it, the state could not claim any reimbursement for the smoker in that hypothetical using your methodology; right?

MR. BIERSTEKER: Object. Objection, asked and answered.

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A. People or states can claim all sorts of things, but in --

Q. I'm asking --

MR. BIERSTEKER: Let the witness --

Q. Wait, wait.

A. No, I want to finish.

MR. BIERSTEKER: Mr. Hamlin --

A. We promised each other that you would wait for me and I would wait for you, and we've been halfway good about that.

Q. I'm just asking you to apply your methodology. That's all. I just want you to keep that in mind.

A. Well, but now that you've interrupted I have to start all over again, because that's the way it's going to have to be. So could you --

Could you try the question again? And I'll try to keep it in mind, and then we'll go forward without interruption. And I'll do my best.

MR. HAMLIN: Could we have the question back.

(Record read by the court reporter.)

MR. BIERSTEKER: Objection, asked and answered.

A. My turn.

Q. Your turn.

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A. The state, the same as with people generally, can claim all sorts of things, but in my opinion they would have no valid reimbursement coming because they paid more in the alternative scenario than they paid in the actual.

Q. What do you mean by "alternative scenario?" Are you talking about the money for the non-smoker?

A. You've given me --

Yes. You've given me two cases, and I took the first to be an actual and the second to be an alternative.

Q. And the first involved the smoker; right?

A. Yes.

Q. And the alternative involved the non-smoker; right?

A. Yes. That's -- that's my understanding of the hypothetical.

(Discussion off the record.)

BY MR. HAMLIN:

Q. And in accordance with your methodology, if we changed the hypothetical by saying that the cigarette would kill in six months as opposed to two years, again, the state wouldn't be entitled to any reimbursement for the smoker.

A. That's not true. That's entirely a separate

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matter.
Q. So if cigarettes killed in six months, then using your methodology, everything would change; is that correct?
A. No.
Q. Is that what you're saying?
A. No. You completely misunderstood.
Q. Well just change the hypothetical.
A. In what way?
Q. Very -- very simply: Instead of having the cigarette kill in two years, that the cigarette would kill in six months.
A. Okay.
Q. What is the state entitled to claim in reimbursement for costs paid to the smoker?
A. It's immaterial. You haven't changed the thing that matters.
Q. So the result would be the same.
A. Unless you changed something else, the result is the same.
Q. Last question: Can you identify any economist anywhere, apart from those who are testifying for tobacco companies in litigation, who claims that premature deaths ought to be part of a calculation for health-care costs?

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MR. BIERSTEKER: Object to the form.

A. Well if I understand the question, it would mean it would be generally in agreement with the kind of sentences we were reading out of the Viscusi report.

Q. Yeah, but in a context other than tobacco.

A. Then I don't understand the question.

Q. Okay.

A. Because that's -- that's the context of the report.

Q. Here, my question was: Can you identify any economist anywhere, apart from those testifying for tobacco companies, --

A. Right. I hear that -- I heard that part.

Q. -- or writing about tobacco --

A. Right, I heard that.

Q. -- who claims that premature deaths ought to be a part of the calculation of health-care costs?

A. If I --

MR. BIERSTEKER: Object to the form.

A. If I understand that, I would interpret it to mean who would agree with the kind of sentences we were reading out of the Viscusi --

Yes, I don't know any economist who would disagree.

Q. And can you identify for me one economist who

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has applied that kind of methodology to a cost -- health-care cost calculation other than in the tobacco context?

A. I can't because I've -- I haven't made a survey of that kind of literature. But I don't have any doubt -- this is in the "anticipate" category -- that most or all of the economists that I could talk to would agree with that basic point.

Q. And so as you sit here today, you can't identify such an economist; right?

A. I didn't understand if you said can or cannot.

Q. Cannot.

A. Identify an economist who has written an article in what we may call parallel to the Viscusi article, but not on the same subject, but making the same points on a different subject. That I cannot do because I don't -- haven't surveyed that literature. But I have no doubt that most or all economists would agree with the basic concept.

Q. Have you ever talked to an economist about that concept?

A. No. But I will.

Q. Yeah.

A. I will. But I have no doubt what I'm going to hear.

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Q. But as you sit here today, you haven't talked to an economist about using premature death in a cost calculation for a subject matter other than tobacco; right?

MR. BIERSTEKER: Object to form.

A. That isn't quite the way I'll have the conversation. I'll have the conversation about total expenses.

Q. I didn't ask about a future conversation. I asked whether you have, as you sit here today, had such a conversation.

A. Not yet. But I will.

MR. HAMLIN: All right. Okay. Start tomorrow at 8:30.

THE WITNESS: Okay.

(Deposition recessed at 5:41 o'clock p.m.)

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C E R T I F I C A T E

I, Richard G. Stirewalt, hereby certify that I am qualified as a verbatim shorthand reporter; that I took in stenographic shorthand the testimony of WILLIAM E. WECKER at the time and place aforesaid; and that the foregoing transcript consisting of pages 1 through 256 is a true and correct, full and complete transcription of said shorthand notes, to the best of my ability.

Dated at Washington, D.C., this 13th day of November, 1997.

RICHARD G. STIREWALT
Registered Professional Reporter
Notary Public

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C E R T I F I C A T E

I, WILLIAM E. WECKER, the deponent, hereby certify that I have read the foregoing transcript consisting of pages 1 through 256, and that said transcript is a true and correct, full and complete transcription of my deposition except:

WILLIAM E. WECKER
Deponent

Sworn and subscribed to before me this day of , 1997.

Notary Public

My commission expires .

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